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THE MEDICAL PROFESSION*

A BUSINESSMAN'S POINT OF VIEW

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NEW ORLEANS

It is an outstanding honor to be permitted to address this meeting. I thoroughly realize the honor and understand the responsibility which I assume in discussing the problems before us at this time. The purpose of this discussion is to place before you, for your consideration, what seems to be the pressing need of very close cooperation between the medical profession and the business world.

I personally feel that the medical profession has, for too long, lived in a world of its own, a world rich with glorious deeds, hundreds of thousands of lives saved, a world with untold opportunities — most amazing and most fascinating. The job to be done, and being done by you physicians, is vast and breath-taking.

However, just as your wife may be reluctant to put down a good story to wash dishes, so do you feel reluctant to lay aside this all absorbing work of yours to think of every day business problems which you must consider.

The public quickly forgets the lives you have saved, the times that you have gotten out of bed at midnight, after a hard day's work, to minister to the sick, the great amounts of time and effort you have given to the poor without compensation; but in the average person's mind linger the minute details of what to you may be trivial incidents but to them seem important, such as being kept uselessly waiting for hours, or the size of the bill for which they cannot find justification, and many other such things that really are secondary when compared with the lives you save.

Now you hold one of the highest places in our order of life. The medical profession is at the top of the ladder of human achievement, entitled to all of the respect and honor that we citizens are capable of offering. But you must not forget that in all relations where the public is concerned, serious consideration must be given to these public relations.

Have not you, as a profession, somewhat held yourselves a bit aloof from civic work? A smaller proportion of physicians are members of the Association of Commerce than other similarly prominent businesses and professions. If you do not take a more active interest in civic matters you lose contact with the public at a time when the best interests of your profession are vitally at stake. You cannot expect the allied business world to come to your rescue unless you fight shoulder to shoulder with us in our common problems.

The politician knows only too well that the best way to get votes is not entirely on the basis of right and wrong. As individuals your members have often responded wonderfully and generously, but as a group you have either thought it not necessary or beneath your dignity to join with the business world in civic matters, even though this cooperation would add vastly to the

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public understanding of your particular problems. And, unfortunately, you, as individuals, often pay dearly for the mistakes of your organization in matters of this type. To clarify this point of view, several observations may be of assistance.

For example, I was amazed to learn that the average, well equipped, specialist's office runs an actual cost, to the specialist, of approximately 75 cents per patient treated in his office. I am quite certain that the public does not understand this. The only thing that they see is a waiting room full of patients which they quickly calculate three dollars per person or whatever the price may be and imagine that the doctor is getting wealthy off of them.

A litle of what we business men call salesmanship in your profession in the matter of public relations, is a most vital need. A little closer cooperation between you and the business world would go a long way to strengthen the foundations of public opinion upon which you ultimately must rest. It is common gossip, justified or not, that the medical profession has no regard for the other fellow's time, packing the waiting rooms full of people and making a sick patient wait hours needlessly. If this practice is necessary, it is then also necessary to explain it to the public. Also the public has never been able to justify in their minds, the free services rendered to those who have the ability to pay. It is the average middle class citizen who pays the freight and who wants a dollar's worth of service for the dollar he pays. He wonders whether it is right, or wrong, to make him pay for the service that you give your friends because of professional etiquette, or because some people are averse to paying doctors' bills, and no matter how you twist it the man who pays, pays not only for himself but for those who do not pay. I am informed that this free service amounts to about one-third of the total charge. It is very much as if you were charged three dollars for a two dollar shirt, just because previously a shirt had been given to a friend of the proprietor who was in the shirt business. After all would not this be quite similar to what is going on in private medical practice?

The public also wonders why the medical profession refuses to have a price fixed or a money understanding beforehand. Business men will make commitments and they feel that there is a measure of poor faith in the medical profession's policy. If your attitude is justified, then your position must be explained reasonably to the public.

Now, just as industry had to clean house so that the politicians would not put us out of business, so do you have to use what we in business would call a little salesmanship and correct certain abuses or you may some day wake up to find that the politician has done it for you.

I have been delighted to learn that in recent weeks more and more doctors have agreed to give special appointments rather than let their paying patients cool their heels for hours. I have been delighted to learn that more and more doctors are seeing fit to cooperate with such movements as the Community Chest because, when you turn down the Community Chest solicitation it costs in public ill will many times over the five, ten or twenty dollars that you would otherwise subscribe.

There are about 2000 representative solicitors in this organization and the common subject for cursing and damning each year is the attitude of the medical profession. They never think of the time that you give to charity, they think of the ten or twenty dollars that they should have collected, and did not. Many misconceptions exist in the public mind regarding charity work; they are too complex for discussion at this time, but in any event salesmanship or, in your case, public relations contacts must be considered by you to allay the ill will which is bred by such aloofness on your part.

You have made many steps in the right direction recently. Your leadership at present seems to be taking the bull by the horns. The very fact that I have been allowed to speak to you on what, after all, is a very ticklish subject is evidence that Dr.

Peacock and the Board are deserving of the trust that you have placed in their leadership. Certain of your members have taken an interest in civic matters individually. Dr. Chas. A. Bahn, is chairman of the Health and Sanitation Committee of the Association of Commerce. Dr. Jos. Wymer has been active in civic matters as well as many other members of your institution, but these efforts in the past have been isolated and I believe that it is vitally necessary that you tackle this problem of public relations and cooperation with the businessman either to iron out the injustices in the situation or if they are not injustices, explain them to the public so that the public will not think you are taking advantage of the fact that you hold health and life itself within your control.

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THE TOXIC EFFECTS OF SULFANILAMIDE AND SULFAPYRIDINE*

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NEW ORLEANS

The golden age of medicine might seem to be dawning. For generations medical scientists have been seeking a drug which would kill bacteria living, growing and multiplying in the body of a man or an animal without also killing the man or the animal. Ehrlich, when he discovered 606, or salvarsan, aimed at what he called *therapia magna sterilans*, but later found that he had discovered only a good remedy for syphilis. Since Ehrlich's discovery of salvarsan, other drugs have been found which will cure certain other diseases caused by spirochetes, trypanosomes, and other protozoan parasites. All of these, however, are animal organisms. No one had ever found a drug which would destroy vegetable organisms, such as bacteria, without also killing the host, until Domagk[1] injected a red dye into white mice which had previously been injected with deadly doses of streptococci, with the startling result that the dye saved the lives of the animals.

Domagk named the red dye prontosil. Its full chemical name is 4-sulfamido-2',4'-diaminoazobenzene. It was soon found that prontosil worked well in human cases of streptococcal and similar infections. Later a simpler compound, at first called prontolin and now generally known as sulfanilamide, was discovered which also gave good results in both animal and human cases of streptococcal and other infections. Its full chemical name is *p*-aminobenzenesulfonamide. This drug has now largely replaced prontosil. Still another compound has recently been found which offers some advantages over others of this group. It is generally called sulfapyridine, but it is also known as M. and B. 693, and dagenan. Its full chemical name is 2-sulfanilyl pyridine. In all probability other closely related chemical substances, with some variations from those already in use, will later be found which will be just as useful and not so toxic.

At the present time, however, sulfanilamide and sulfapyridine are the words most frequently heard on the lips of every distinguished physician. A wave of sulfanilamide enthusiasm has swept the world. Even conservative Morris Fishbein says, "Obviously if the drug is useful in all these conditions, it is one of the greatest developments that has ever occurred in medical science." He immediately adds a note of caution, however, by stating "but like all other powerful remedies, the use of sulfanilamide is not an unmixed blessing."

The newspaper and radio publicity has so fired the imagination of the laity that they are asking for sulfanilamide. As a result, it is now becoming difficult for the physician to hold an even keel and to use sound judgment, caution and wisdom in the use of the new magic pills. But caution and restraint should characterize the use of these new and powerful remedies. Any drug which is potent enough to poison bacteria living in the body must be a very powerful drug, a sort of therapeutic dynamite.

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Fortunately sulfanilamide is not quite so poisonous to man as it is to bacteria, at least man can survive longer. Perhaps this is because the life span of the bacterium is so much shorter than that of the body cells of man. If the drug merely suspends multiplication of bacteria, therefore, it will be effective in ridding the body of infection. Lockwood[2] finds evidence that it stops the germs from digesting proteins, and that this interference with digestion in turn halts their growth and multiplication. If a man tried to take the drug over a long period of time, it would probably sterilize him also, that is, if it did not prove fatal to him.

TOXIC EFFECTS

The toxic effects of sulfanilamide and of sulfapyridine are exerted on almost all organs and functions of the body, including the nervous system, the gastrointestinal tract, the urinary system, the blood and the skin.[3] In practically every patient to whom these drugs are given there is evidence of a powerful depressant effect on the central nervous system. This is evidenced by malaise, a sense of depression, dizziness, a feeling of light-headedness, and headache. Sometimes there is severe general depression, and even collapse. Also in nearly every person there is evidence of the irritating action of the drugs on the gastrointestinal tract, as shown by nausea, vomiting, and diarrhea. Anorexia develops when their administration is continued over a long period of time.

In most cases there is evidence of the irritating effects of the drug on the urinary system, as shown by the appearance in the urine of albumin, epithelial cells, red blood cells, and casts. Severe hematuria is one of the most dangerous effects of sulfanilamide poisoning, and may prove fatal.

Delayed deaths sometimes have occurred in rats which had apparently been cured of infections by the use of sulfapyridine.[4] The fatalities were due to renal calculi, which were formed from the precipitation of the drug as it was being excreted through the kidneys and which became impacted, causing more or less complete obstruction to the passage of urine. The kidneys were large and soft, the pelves and ureters dilated, and the bladders empty and contracted.

CYANOSIS

Cyanosis of some type or degree occurs almost constantly when sulfanilamide or sulfapyridine is used. It is frequently due to the formation of methemoglobin, caused by the sulfone group ($-SO_2$) which is part of the sulfanilamide molecule. The sulfone group is also present in aniline derivatives and in coal tar antipyretics, both of which are known to produce methemoglobinemia. Five per cent methemoglobinemia is enough to produce clinical cyanosis, and 15 per cent produces profound cyanosis. Stopping the sulfanilamide usually results in the disappearance of the cyanosis in about 24 hours, and the administration of one or two grains of methylene blue in capsules every four hours will facilitate and accelerate the disappearance of the methemoglobinemia.

A second type of cyanosis is apparently due to the formation of sulfhemoglobin: Hydrogen sulfide, formed by putrefactive processes in the large bowel, is readily absorbed and combined with the hemoglobin of the blood, thus preventing the hemoglobin from carrying oxygen, the deprivation in turn causing cyanosis. Sulfur from the sulfanilamide molecule may also be used to form the sulfhemoglobin. The administration of magnesium sulfate or other saline cathartics, the ingestion of foods with large residues, or of eggs or other food rich in sulfur, all favor the formation of sulfhemoglobin and should be avoided during the use of sulfanilamide. Sulfhemoglobinemia is sometimes fatal. Methylene blue has no appreciable effect on this condition, but the use of oxygen is beneficial.

A third type of cyanosis is not apparently associated with any hemoglobin abnormality, but is due to a black oxidation product of the drugs, which dyes the red corpuscles. Another theory is that the violet color is due to the effects of ultra-violet radiation on the drugs, which produces a purplish

color in them, and in turn causes apparent cyanosis in the patient.

BLOOD CHANGES

Hemolytic anemia is another dangerous and sometimes fatal poisonous effect of sulfanilamide and sulfapyridine. It comes on from 24 to 72 hours after their administration is begun, and is associated with dizziness, weakness and vomiting. The products of hemoglobin destruction are found in the urine and blood. The best prophylaxis is frequent hemoglobin determinations to detect a possible anemia, plus immediate withdrawal of the drug if there is a sharp fall in the red blood cells. When hemolytic anemia has once developed, the drug should be discontinued at once, fluids forced, and transfusions given. The patient should not again be given sufanilamide.

Hemolytic jaundice occurs when sulfanilamide has destroyed large numbers of red blood cells, the jaundice being due to the over-loading of the liver with the elimination of hemoglobin pigments. Toxic jaundice, the manifestation of toxic hepatitis, results from the poisonous action of sulfanilamide on the liver. The liver is enlarged, bile appears in the urine, there is a high icterus index, and a biphasic Van den Bergh reaction. Toxic hepatitis is very unusual, and when it does occur, is usually associated with severe dermatitis.

Leukopenia or granulopenia is a severe, dangerous, and sometimes fatal effect of sulfanilamide poisoning. It is caused by the depressing action of the drug on the blood forming tissues. In this condition there is a low total white count, 3,000, 2,000, or even less, with few granulocytes. The chief symptoms are malaise and angina. This effect of sulfanilamide and sulfapyridine therapy is not surprising, for these drugs, like amidopyrine, contain the benzene ring, and it is well known that poisoning by benzene and many of its derivatives produces leukopenia or granulopenia.

As Tedder[5] has pointed out, sulfanilamide produces a wide variety of skin lesions, including purpura, erythema, scarlatina, exfoliative dermatitis, and allergic sensitization. Photosensitization of the skin may occur, eruptions appearing only on the areas which are exposed to sunlight.

TREATMENT OF TOXIC EFFECTS

Physicians who advocate the use of sulfanilamide and sulfapyridine usually advise that the drugs be continued and pushed in spite of the common toxic effects, and that they be discontinued only if symptoms become alarming and severe. According to McGinty, Lewis and Holtzclaw[6], mild toxic symptoms can be relieved by the use of nicotinic acid, in 50 mg. doses three times a day. If this observation is generally confirmed, it may be that some of the milder and merely disagreeable effects of sulfanilamide and sulfapyridine can be controlled by the administration of suitable doses of nicotinic acid. It would seem doubtful, however, that this therapy could prevent the more serious toxic effects of sulfanilamide and similar drugs.

CONCLUSIONS

It is evident, therefore, that sulfanilamide and sulfapyridine are so potentially dangerous that, in spite of the enthusiasm of both laity and profession, restraint and conservatism should characterize the attitude of the physician who employs these valuable but toxic drugs. At present their routine use in all cases of infection seems unwarranted. It would seem wiser to restrict them to the cases in which the outlook is not good. If the outlook is good, the danger of their use may exceed the risks of the infection. To use sulfanilamide and sulfapyridine freely and indiscriminately will all too often result in severe, dangerous poisoning, and, at least now and then, will eventually result in a fatality.

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DISCUSSION

Dr. Allan Eustis (New Orleans): There is one point I want to bring out. Three cases of fatty degeneration of the liver occurring after administration of sulfanilamide have recently been reported. I was forcibly reminded of this only last week by a patient of mine who was taking prontosil on the advice of a genito-urinary specialist. I made him bring a specimen of urine to the office daily and I watched the urine by Ehrlich's aldehyde test, which is still considered by me an adequate test for liver function. I have seen this man for the last fifteen years and he has never shown a positive aldehyde test. After being on prontosil for several days he showed a strong urobilinogen test. I advised stopping the drug which the urologist did. The next day the patient was mildly jaundiced. The drug undoubtedly caused damage to the liver.

I want to urge those giving sulfanilamide to keep their patients on a high carbohydrate and a low protein diet, which assists the liver in combating toxic substances.

Dr. H. W. E. Walther (New Orleans): I agree fully with Dr. Brooks. I think we have to divide patients taking sulfanilamide into three groups, namely: children, healthy adults, and old people. Certainly, we cannot give old people the large sized doses we give young, strapping men in their early twenties and thirties. After 45 or 50, I doubt whether anyone has a normal liver. And because this is a white tablet, we sometimes forget we are dealing with a dye, and that it has to be handled by the cells of the liver. We know in treating old people, where sufanilamide is indicated, we can give small doses, and of course watch the patients carefully. I think the therapy of aged patients is still not receiving the attention it deserves. And here is one point in sulfanilamide therapy (whether in the aged patient or in the patient with a damaged liver) you have to exercise proper caution.

EMOTIONAL FACTORS IN DISEASE*

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NEW ORLEANS

Emotions were probably one of man's earliest possessions. They diffuse throughout the organism and serve to integrate and regulate organs, organ systems and their functions, bringing all these part structures and part functions into a state of oneness or unity, whereby the human organism as a whole can meet a situation quickly and effectively. One of the earliest situations man had to face was danger, threat of harm or destruction, demanding defense or offense. Herein lay the importance of a central, dynamic, energizing affect, hence fear and its accompanying physiologic processes, which led to attitude and preparedness, or further, to action such as flight or fight. Emotions served in a like manner with regard to obtaining food, and in connection with those important processes that constitute reproduction of the species. The emotions, then, are deeply ingrained, and tied up with those deeply rooted biologic urges and needs we call instincts.

As time passed and man became more civilized, he developed symbols such as words, thoughts and ideas, carrying both personal and group meanings. With symbolization his more primitive emotional reactions gradually became modified in character and effect: Primitive man could and did give free rein to his emotions as they arose, but modern man cannot do this without social excommunication. Nevertheless, their force and power remained and throughout the centuries they have been the innersprings of the personality. Emotions in the average person today do not react so violently but exist over a longer period of time, wearing off more slowly; not as fear, but as anxiety, apprehension and worry; not as open hostility and physical aggression, but as indignation, resentment and grievance bearing; not as sex stirrings and action in the crude sense, but in the yearn-

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ing, desire and the highly differentiated sexual cravings and imaginations we see today. The resultant stirrings and tensions and their effects are only too often mistaken by patient and physician for symptoms or signs of "organic" disease.

Primitive man's fear of harm to his body has remained in his descendants, but the latter's knowledge of his body and its functions make it quite a different matter, because of the wealth of imaginative resources from which he has to draw. He hears legitimate physicians discuss health and physiology over the radio, and reads their health columns in the daily paper. In the libraries he finds countless books about human disease and disorder. Therefore, when his body, its functions and its health are endangered he becomes uncertain, worried and apprehensive, and the physician does well to take this into consideration. He should at least ascertain what the patient's emotional life is, his knowledge of his disorder and his attitude towards it, towards his physician and towards the proposed work, whether surgery, drugs, electrical gadgets, or plain hocus pocus. The old time family physician understood this and he was certainly far from being a poor psychiatrist. He looked upon his patients not just as bodies but as live persons, and as a rule knew the setting in which they were born, and their lives from conception on. He could very easily recognize the emotional factors at work because he knew the background of the complaint, the family, the home life, and the many jealousies and grievances therein. He knew the individual's aspirations and disappointments, and consciously and conscientiously studied and interpreted his patient's personal and interpersonal problems and the symptoms of his disorder with their meaning and purpose. He was thus in a position to administer sound advice, encouragement and reassurance, his healthful stimulation guiding the patient toward more wholesome objectives in life. This is mental healing. Thus he utilized rapport, suggestion, ventilation and analysis and interpretation of difficulties, and sought to reconstruct, readjust and rehabilitate. His psychologic armamentarium was most certainly not limited to evisceration, prescription of bromides, electrical currents, cajoling and back-slapping, and I do not believe any of you will deny the reputation of this great man as a student of human nature, of medicine and of healing.

On the surface it might seem unnecessary to emphasize the importance of emotional factors in disease to a group of modern physicians, but observation and study prove the contrary. The following cases are used to illustrate this point.

The first is an interesting case with orthopedic implications:

CASE REPORT NO. 1

The patient is a 29 year old woman, mother of two children, complaining of weakness and inability to walk, and previously diagnosed as having peripheral vascular disease. When our surgeons could not substantiate this they requested a psychiatric consultation. When I first saw her she was the picture of woe and passive distress, unwilling even to try to stand or walk. She was emotionally immature, insecure and pent up, and obviously had been brooding. As rapport was established she revealed an array of troubles, experiencing considerable relief from the ventilation and showing coincidentally more ease in manner and movement.

She had run away from home at 15 to marry her first husband, by whom she had a child, and all went well until he was killed by a falling tree. She then went to work and was getting along rather well when she married her second husband after a courtship of one or two months. When she bore him a child at the end of a year he openly doubted its paternity and questioned her fidelity. (The patient stated that her husband had philandered but she had not, and it is probable that he was projecting his own unfaithfulness.) He began to drink, cursed her and disavowed any affection for her or the childern. He even tried to make her reject her friends and give up her Church and Sunday School activities, the only straws upon which she could lean. She disclosed her troubles to no one and her reaction to her husband's sexual overtures was that of fear and repulsion. Finances grew more strained and the diet became quite deficient. She began to have pains in the legs and avitaminosis may very well have been an important factor. One day her legs hurt very badly and began drawing up, which her physician attributed to "arthritis", although her joints were not swollen, tender or inflamed, and she had no

fever. On being questioned, she recalled that a short time before she had been deeply impressed by the sight of a woman whose legs were drawn up and who had extreme difficulty in walking.

She remained in bed six months, the trouble growing worse. She therefore sought the advice of a prominent orthopedic surgeon, who made a diagnosis of Raynaud's disease and carried out a lumbar sympathectomy, following which two toes sloughed on the right foot. After this operation the surgeon told her that "while she could expect to be improved for a little while, later her feet would have to be amputated, then her legs, and eventually the process might involve her heart."

On physical examination the buccal mucosa and vulva were inflamed and over the neck and back were areas thought by some to be cigarette burns. There was no objective weakness or ataxia and though the gait was shaky at first it improved rapidly with suggestion and reassurance. Tendon reflexes and abdominals were increased, but there was no hypertonus. The left foot and toes looked to be contracted and a Babinski-like reaction was found on that side. There were no sensibility changes but her calf muscles were very tender when squeezed. Extensive laboratory work was negative. She responded quickly to a balanced, high vitamin diet, problem analysis and reassurance, and was soon walking about the city like a normal person.

Her condition is considered a hysterical reaction, associated with which might well be structural changes in the nervous system as a result of avitaminosis and bilateral lumbar sympathectomy. Prognosis was held to be poor because of the difficult home situation.

We see here rather clearly how emotions can produce physical phenomena, and how easily a physician can be misled if he thinks only in terms of the body structures rather than in terms of the whole person with a life story. We see the importance of obtaining a good history with all the symptoms, the settings in which they came to life, their symbolic meaning, and the purpose they serve. What could she do but develop some sort of an illness? We also learn the danger of resorting to the knife too quickly, when conservative methods would be more effective. Further we learn something about iatrogenic factors, i. e., symptoms induced or aggravated by the actions, manners or statements of those associated with medical work, physicians, nurses, druggists, and technicians. The patient may very well have exaggerated what the surgeon told her, but that is beside the point; after all what she infers and thinks is what enters into the emotional reaction inducing and aggravating symptoms.

The following is a case with ophthalmoscopic implications*:

CASE REPORT NO. 2

A 23 year old drug clerk went to an eastern hospital after her home physician had urged enucleation of an eye. She had experienced pain in the left eye for about two years, but in February, 1934, the exact date not recalled, it became quite sharp and severe. She saw a physician immediately and he administered a tablet of some kind and advised the use of a shield. Relief was obtained that afternoon but the pain recurred the next morning along with photophobia. The physician then told her "a muscle was pulling too much" and began using atropine, changing to cocaine when the pain was extreme. A second physician made a diagnosis of pulmonary tuberculosis, although x-rays of the lungs were negative. This caused more worry because the six months' treatment advised would stop her earnings and throw the family on charity. A third physician said she had tuberculosis of the eye, and she concluded that the tuberculosis was spreading. She returned to the first physician very upset and he openly disagreed with the other diagnoses, saying the pain was due to an old scar and the eye should be enucleated. Glass eyes were shown her, and the advantages of one over the other pointed out. She became frightened and ran out of his office.

Let us now get to the significant facts: Previously she had had several illnesses of particular significance. The first was at the age of nine when she suddenly lost her voice and experienced difficulty in using her legs. The condition was attributed to diseased tonsils and needless to say they were removed. After the operation she was unable to move her extremities and had to be turned in bed. The family reported that she was "unconscious" for three days and aphonic for 13. No causative factors could be obtained, but her physician advised the family to keep her out of school for a year on account of rheumatism. A second attack of aphonia occurred several months before the onset of the present disorder when she arrived in New York City alone to attend a meeting of cosmeticians. A physician attributed it to a cold, but she had none, and the following afternoon her voice returned. The next day she lost it again just before the meeting and regained it a short time before it was over. She felt strain and worry had had a great deal to do with it because she had been under tension for several months

following her grandfather's suicide and her mother's illness, during which the latter took too much veronal in a suicidal attempt. She suddenly lost her voice a third time when her employer informed her she had put the wrong drug in a prescription, phenol instead of chloroform, and the customer was threatening suit. Recalling that another store had been sued on the same grounds, the patient developed palpitation and near paralysis of the lower extremities.

The past history revealed numerous neurotic traits during childhood. From the age of seven she had had headaches attributed to bad vision in the left eye. At 11 the left eye seemed to be crossed for the first time, and at 16 she was found to be astigmatic. However, she would only wear her glasses intermittently. She completed high school and spent one and a half years in college, leaving to help her family financially. Thus disappointed and discouraged she obtained work in a drugstore, and after a short time was filling prescriptions at the request of her employer, although she did not want to and was always doubtful about it.

In 1931 she fell in love, becoming engaged in January 1933 and planning to marry in May. Two weeks before her marriage her father lost his job, but she felt hopeful he would soon get work and withheld knowledge of her wedding plans from him until he was employed. When he did not get work she grew discouraged but felt she could not reveal her disappointment to her family. She began to brood but continued to see her fiance, whose overtures produced strong sexual arousals and frustrations and added to her difficulties.

As a thorough physical examination was negative we reassured the girl that she would not lose her eye and urged her to discuss her problems with us further, since she was showing so much improvement to our treatment of them on an emotional basis. We had frequent discussions and urged her to relate all her dreams, making careful notes of all material obtained and searching for leads upon which to plan future interviews. We noticed that whenever we touched upon her work she became restless, the eye pain increased and the voice became weak and inaudible. Problem by problem, conflict by conflict was analyzed and resynthesized until she was slowly but progressively brought to the point where she was questioned about what she was doing when the pain made its onset. At this time she became extremely tense and restless, her voice grew weak, and she finally said with tremendous difficulty, "There are things I have been trying to forget and hoped I wouldn't have to tell you." After some encouragement, however, she brought forth the disturbing content and then abreacted so violently she almost had a convulsion. But the pain and photophobia disappeared and the eye assumed its normal position. Shortly thereafter she began wearing her new glasses, worked out her general problems of adjustment, and returned home. A letter several years later revealed that there had been no recurrence of pain and all was going well.

I know you are wondering about the thought coincident to the onset of pain and closure of the left eye. You will recall that she was dubious about filling prescriptions, especially after her mother took veronal in a suicidal attempt. The prescription she filled incorrectly, using phenol instead of chloroform, was for the physician who prescribed veronal for her mother, and who had upbraided her and threatened the druggist. The day the eye pain began this physician walked into the store in a hurry to get a prescription filled and she was the only one there. With great trepidation she began to fill a prescription for the doctor who had been responsible, so she thought, for her mother's taking an overdose of veronal, and for whom she had already filled one prescription incorrectly. As she looked at the prescription it said veronal. As she looked at the bottle on the shelf it said veronal, the adjacent bottle phenol. She could not bear the sight before her and the associations it provoked. The pain became intense, the eye closed, and all she could think of was veronal and its terrible implications.

I consider this a monosymptomatic hysterical reaction with incidental depression in an insecure girl who from early life had a constitutional deficiency in the visual apparatus.

We find many interesting points here. First of all the history is quite typical of a hysterical reaction and the psychopathology is well shown—the highly emotional episode setting off the affair, the symptom formation and the abreaction. However, the disorder is unique in that it is monosymptomatic, limited to one eye. We are again reminded how utterly foolish it is to treat just legs, lungs or eyes rather than the live person in whom any organ or structure may become involved while in "the service of the personality." The patient's symptoms were symbolic, they stood for something and served a purpose. They were nature's compromise or solution to an intolerable situation on an emotional rather than an intellectual basis. She had bad eyes, a legiti-

mate excuse for not filling prescriptions any more. We see again how easily a physician can be misled into resorting to unnecessary radical or even mutilating measures. Taking something out, taking some organ away from the person, is not always the best rationale. It may be the easiest way but it is certainly not always a guarantee of continued internal peace, harmony and adjustment. Some patients have very definite urges which can be satisfied only through mutilation or evisceration, and I cannot overemphasize the necessity for care in working out these cases of focal martyrdom or, as Karl Menninger so aptly puts it, focal suicide.

Such a patient, whose history is like the above case report, is only too often considered "strange" or "interesting" and allowed to go at that, rather than studied with the aid of simple, practical, though time consuming psychiatric measures. Even worse, it may receive a negative diagnosis, such as "There is nothing wrong physically", apparently on the assumption that the physical examination is a sort of holy of holies, sufficient unto itself. Common sense alone should make us realize that to do justice to a sick person with any completeness and accuracy there can be no such thing as a "physical' or a "mental" examination but only an examination of the whole, living person.

The last case is one with dermatologic implications*:

CASE REPORT NO. 3

This patient is a 32 year old college teacher with eczema, subcutaneous hemorrhages over the legs and arms, palpitation, trembling of the legs with collapse and fear of death, and a basal metabolic rate of +32. Competent specialists could not account for her condition on an "organic" basis and one finally suggested that she seek psychiatric help. The following facts were then obtained:

She was a suspicious, intolerant person of Scandinavian stock whose family was highly charged with maladjustment, temperament, peculiarity and strong likes and dislikes. From early in life she had had ill defined fears and later on had anxiety attacks when under stress. Gradually she developed body consciousness and great concern about her health. After her father's death, a quarrel with her sister and brother-in-law over the mismanagement of a $250,000 estate, and the death of her mother, the anxiety attacks became more frequent and severe and appeared to form a vicious circle; the more fear and tension, the more skin manifestations, and vice versa. Then in the midst of it all she received a letter telling her of the death of the family physician from "incurable heart disease." For years she had entertained a fanciful love affair towards this man, thinking of him as the ideal of manhood, never quite getting over his marriage. After his death her condition became more or less fixed, leading to numerous consultations and just as many different opinions. Finally, to use her own term, she "collapsed", could hardly move her legs, thought she was dying, and got up in the middle of the night to make her will. After entering a psychiatric hospital where conservative psychotherapy was practiced, she had some hypnagogic hallucinations and developed more anxiety, marked tension, fear of cancer and brain hemorrhage. She thought her body was falling to pieces and her gastrointestinal tract changing preliminary to death. She felt her family had treated her unjustly, put more emphasis on the fanciful love affair, and progressively became more suspicious that her family and physicians were conniving together. In the face of all this, however, she smiled and showed no signs of any gross discomfort.

Thus we see a twist reaction developing in a set, highly educated, imaginative person who had led a successful but lonesome life, with few social contacts with the other sex. Her stay in the hospital was a stormy one but time and intelligent care brought on great improvement until finally she was able to leave the supervised environment.

This case shows clearly how both internal and external ectoderm can be part and parcel of the same affair, emotional processes making all parts and functions of the person one. It would have been tragic to label this woman dementia precox and throw up our hands with a fatalistic diagnosis and pessimistic prophecy, rather than treat her with the more constructive point of view as a schizophrenic reaction with profound anxiety, rather unnatural hypochrondriacal trends and paranoid features. A letter from her cousin some five years later reads

*These cases were seen while at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital. Permission to use them was very kindly granted by Dr. Adolf Meyer.

as follows: "A. . . has been doing substitute teaching . . . is well and the skin irritation has completely disappeared now for over a year. . . . I feel she is as able as most of us to complete the years left to her in a capable manner."

SUMMARY

My purpose in this paper has been to bring before you as modern physicians the necessity for an active rather than a passive awareness of emotional factors in health, disease and convalescence, and to urge you to give more consideration to them in the patients who come to you for help. Emotions are at work in every person, whether healthy and happy or sick and sad. Failure to recognize and manage them properly has been costly to us, and to sum it up briefly one might say that the pathologist dealing with the dead body is the only one of us who can with perfect safety close his eyes to emotional factors. More and more physicians are accepting this idea, some as a matter of conscience and ethics, others because they realize that with our changing social fabric and medical horizon the public is making demands upon us which we cannot ignore. Many of our colleagues are urging more honesty within our own ranks before we resort to condemnation of quacks and cults, who after all depend for their livelihood not only on the gullibility of their victims but also on the stupidity of legitimate physicians. However, much of the prejudice of the past will fade and is fading, yielding to the light of knowledge in the new order of medical work. Our motto for the future might well be expressed in the words of Frank B. Wynn, in his Ten Commandments of Medical Ethics: "Hold fast to that which is good, but let not the prejudices coming out of the past blind thy vision to the newer truths of medical achievement."

DISCUSSION

Dr. M. S. Freiman (Pineville): The subject so ably presented by Dr. Watters is a perennial favorite with psychiatrists addressing a mixed group such as this and, well it may be, for it seems to me that no case is more often mismanaged by his physician than the individual suffering from a so-called functional condition. The reasons for this are not hard to find.

In the first place, many physicians graduate from medical school with but the haziest notion as to the mechanisms involved and with no idea at all as to how to treat such a condition scientifically. The result is that when confronted with a case the physician will overlook the psychogenic factors entirely or else, as Dr. Watters pointed out, he will attempt to achieve a cure by the use of drugs or surgery. We have all seen persons in whom some abdominal organ has been removed because the patient had a constant pain in its vicinity and the physician, despite the absence of physical signs, thought to effect a cure through surgery.

Secondly, the cases presented by Dr. Watters are far more dramatic than one usually encounters and, therefore, one presumes would arouse greater interest on the part of the attending physician. Unfortunately, many psychoneurotics have symptoms that appear trivial and inconsequential; their personalities are such that instead of creating sympathy, they arouse the antagonism of the physian so that rapport can never be established.

Third, there is the time element to consider. Dr. Watters did not state just how long it took to effect cures in the cases he discussed, but I would venture to state that it took hours and weeks of patient questioning before the complexes were brought to the surface, and it is impossible for many physicians with active practices to devote the time necessary to effect a cure in these cases.

Finally, it is quite obvious that all physicians do not have the necessary temperament to achieve success in this type of work. Many are definitely not interested and it would be a mistake to assume that such an individual could accomplish any good handling a functional case.

Dr. Watters said that it is in the province of the general physician and the surgeon to treat these cases, and on that point I agree, with the provision that the physician should be qualified and should have the time necessary to devote to the case. Lacking these, it seems to me it would be kinder of him to turn the patient over to someone who would be capable of handling the case properly. It seems to me that we will never get anywhere until the medical profession as a whole adopts the viewpoint of the psychiatrist. In the medical schools far greater emphasis will have to be placed on the study of mental mechanisms and the manner in which these functional conditions are brought about. It is my contention that this should be done, not with the view of making psychiatrists out of everyone, but because the individual fortified with this knowledge will be a better surgeon and a better practitioner of medicine. If, after he leaves school, he decides that he does not care to treat these functional conditions, he will at least be able

to recognize them and to turn the patient over to someone who will handle him or her properly.

Dr. George N. Furbeck (Mexico City, Mexico): In the first place, how is the general practitioner going to have the time and get the proper training? It can be done, but it takes time.

Second, it is unfortunately almost impossbile to get patients to go to the psychiatrist. They resent any suggestion that there may be something wrong mentally and they refuse.

Third, granted we do consider the case as one for the psychiatrist—I have been trying to find the psychiatrist.

Dr. C. S. Holbrook (New Orleans): I am of the opinion a number of these cases are not so complicated that the general practitioner could not work them out. Many of the disturbances, the cardiac neuroses, the gastric symptoms, that are apt to be present and due entirely to emotional disturbances frequently have a very apparent cause, and if one is willing to delve into the history with the patient he can usually go back to the very beginning of things, the very first occasion in which the symptoms came on, and this will generally be found to be a fear reaction. Often the digging up of this mechanism and explaining it to the patient is all that is necessary. There are a number of patients who are quite anxious to get well and who are willing to confess the fact of their neuroses. In these cases, if the physician will give the patient an opportunity to talk and have in mind that these reactions are on the fear basis, and go to the beginning of the trouble, he can often work out the problem, and elaborate analysis is not necessary. The practitioner should devote considerable time to these patients, for seldom will demonstrating the mechanism of the emotional disorder suffice; psychotherapy must continue until the symptoms have been allayed for a considerable time.

Dr. Dean H. Duncan (Shreveport): I think Dr. Watters' paper is of particular interest in a general meeting such as this. It has served to emphasize the role played by emotional factors in the illness encountered in every day surgical and medical practice. As Dr. Holbrook has said in his discussion, I believe that a very large number of patients presenting symptoms of illness resulting from emotional disorder can be satisfactorily managed by the general physician or surgeon. This necessitates, of course, an attitude of approach which takes into account the entire situation and the patient's reaction to it. In most functional disorders, as so-called psychoneuroses, a prolonged program of analysis is unnecessary provided proper attention is given to the complaint factor and a careful longitudinal investigation of the individual is carried on during the history taking. In this way, the various reactions of a patient, and the situations in which he has attempted to adjust in various periods of his life, may be learned. Once a satisfactory patient-physician relationship has been established, patients are usually quite ready to discuss the various stresses which have existed, provided they sense an attitude of understanding, interest and helpfulness in the physician. The patient, in this way, is led to understand himself and the emotional reactions which have led to symptom formation.

Dr. J. P. Sanders (Caspiana): I wish to say a few words in regard to the general practitioner, especially in the rural districts. I think we, as rural practitioners, find many of the things Dr. Watters described, and we either correct or avoid them. There are two or three reasons for that. First of all, we avoid the stress and strain that you have in the larger cities, the emotional factors. These cases Dr. Watters brought to our attention had conditions in the family life that were not adjusted, conditions in the economic situation that could not be adjusted. The general practitioner has seen the patient from birth, has seen him grow up, treated him for his colds, his flu and childhood diseases. We are in the home constantly and we see these strains develop. It is up to us as the advisor of the family to take care of this patient, to get him to see these factors and avoid them.

I believe mental hygiene is on the increase and we are trying to find these patients early, in the grammar school and in the high school. How are we going to cure them? That is very expensive and takes a lot of trouble. We are not specialists, but it occurs to me that if we could handle these patients under private physicians, then we could avoid a great many emotional factors by talking over these factors with the patient. We see them all the time in the country as boys and girls of grammar school and high school age. They come to us and discuss these matters. There we get in our best work by threshing out little things that become big things later on in life.

As to the training of the doctor himself, I know personally that they did not teach us enough about psychiatry in medical school. When I got out of school I had a conglomeration of knowledge I could not put together. We should consider that more, and then, of course, in the hospital internship we should have a month or six weeks in active training in this work under competent men.

Dr. Donovan C. Browne (New Orleans): It certainly is instructive to hear a presentation such as Dr. Watters'. There remains, however, one note of caution which should be stressed. It is particularly true in my work in gastrointestinal diseases that emotional factors play a large role, yet it must be borne in mind that although the predominant picture may be emotional, these individuals may also have organic breakdown. I am sure that the recent work of Chester Jones is significant in this respect. Let me urge that these patients be given the benefit of careful examination before emotional factors be accepted.

Dr. T. A. Watters (In conclusion): Dr. Freiman has raised the practical question of time, and reference to the three cases in my paper will answer him most concretely. The first patient, who had trouble in her legs and difficulty in walking, was straightened out in about four or five hours of therapeutic discussion. It took about four or five weeks to straighten out the second patient, who was in a psychiatric hospital, and I would say offhand that about 20 hours were given to direct therapeutic discussion. The last patient was hospitalized seven or eight months with innumerable hours given to direct "psychotherapy." Her condition, however, was a much more serious and less plastic maladjustment.

I wrote this paper with the definite feeling that the general practitioner can do good psychiatry, and this I still contend. However, he must obligate himself to know more and more about modern psychiatry and its terminology, and "psychotherapy" and the concepts and technics upon which it rests. Just as the general practitioner can be a relatively good surgeon, so can he be a relatively good psychiatrist, and the more I see of some of these gentlemen the more I respect them for their ability along these lines. Psychiatry is not a mystery, and neither is "mental" healing, and much will be done to blot out incompetence and recklessness in this work when more time and attention are given to it in medical pedagogy. Dr. Freiman is certainly correct when he says that medical schools need to give it more serious consideration.

Dr. Holbrook's statements in regard to the general physician doing this work are pertinent, and of course the specialist has his place. This is true in psychiatry as in all spheres of medical work; indeed it will be more applicable to psychiatry than any other branch of medicine until it is taught on a fairer, more equal basis with other subjects.

Dr. Furbeck mentioned the stigma usually attached to "mental" disease. The general practitioner, I believe, can do and is doing much to help us combat this erroneous belief. In Illinois former patients in psychiatric hospitals have formed an organization for the express purpose of correcting this state of affairs, sponsoring radio talks by competent physicians and getting out a most interesting publication. Their efforts thus far have been quite successful.

Dr. Duncan's points are well taken and so are those of Dr. Sanders. The later has a wholesome attitude and sound point of view upon which to build a well seasoned knowledge of "mental" therapeutics.

And last but not least, Dr. Browne's remarks carry a wise word of advice. We must always look for "organic" disease, and this point drives home again the necessity for being first a physician and then a psychiatrist. I might add here that the psychiatrist is never forgiven for overlooking organic disease, although the reverse is not true. Only too often a physician fails to pick up incipient psychiatric disorders and allows serious problems to develop. I constantly remind my students that they must never forget the possibility of brain tumors, or infections, and urge continual vigilance and acceptance of the fact that a patient must be studied as a whole. This same point of view makes us more conscious of emotions and what they can do if we are studying the patient with, or for, organic disease.

DIAGNOSTIC SURVEY OF THE ALLERGIC PATIENT

NICHOLAS K. EDRINGTON, M. D.*

NEW ORLEANS

A vast amount of experimental, theoretical and clinical literature has accumulated during the past two decades on the subject of allergy. On account of its confusing terminology and various theories to explain the symptom-complex of allergic diseases, the average clinician is perplexed and utterly at a loss to make practical use of the known facts and their application to the subject of immunology and clinical medicine.

Allergic diseases, however, constitute a group as distinct in their etiology as the bacterial diseases. As, in the past, it has been necessary to study bacteriology to understand better the infectious diseases, so today we must not neglect the study of allergy in order that we may have a comprehensive understanding of its many and varied manifestations. The importance of acquaintance with the subject of allergy is based upon the consideration that the symptoms of the allergic reaction may occur in any part of the body. For this reason, though the field of allergy is, in a sense, a highly specialized one, an understanding of the subject and the methods of diagnosis is of importance to every physician, no matter what his specialty is, or wherein his interest lies.

Various estimates reveal that from 7 to 10 per cent of the population suffer from one or more manifestations of allergy, while

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a much larger number of persons have experienced at some period of their lives a temporary, or mild allergy, which is often difficult to elicit, except by careful questioning. The list of diseases due to allergy is constantly growing and the right of some for inclusion is, no doubt, open to question. None, however, will dispute that true hay fever, allergic or vasomotor rhinitis, allergic bronchitis and a great majority of the asthmas are distinctly of allergic nature. Most cases of true migraine and many cases of atopic eczema (especially in children), urticaria, angioneurotic edema and gastrointestinal upsets are due to food or some other allergen. Many cases of arthritis, gall and urinary bladder pain, frequency and eneuresis have an allergic etiology. It may be readily seen that there is a vast army of allergic people awaiting our increasing interest in them.

DIAGNOSTIC OBSERVATIONS

The diagnosis of allergic diseases presents no particular difficulty. In many cases the diagnosis has already been determined by the patient or his friends. The allergist is consulted in an attempt to determine the specific causative factors in a case so that relief may be obtained by eliminating these factors from the diet or environment.

Faced with a problem of doubtful etiology, certain diagnostic criteria propounded by Rackemann,[1] may be applied.

"1. A presenting symptom which can be explained by smooth muscle spasm, or by increased capillary permeability.

"2. The occurrence of one or several other manifestations of allergy.

"3. A positive family history of allergy.

"4. The presence of positive skin tests.

"5. The presence of a blood eosinophilia."

The indication that allergy must be considered, depends upon the greater number of these characteristics present in the patient's symptoms. To these criteria may be added the clinical response to epinephrine, which often furnishes a useful therapeutic guide in many cases.

When it has been established that we are dealing with an allergic problem, it is now necessary to establish the importance of certain specific causative or exciting factors and the secondary or predisposing factors that may have a bearing on the case. For this purpose, we must depend not only upon the history, physical examination and laboratory tests, but also upon specific skin and other tests for allergens, therapeutic trial and certain special examinations when indicated.

IMPORTANCE OF THE HISTORY

A detailed and carefully taken history constitutes one of the most important aids in the diagnosis of an allergic disease. In fact, in many instances, diagnosis can be made on the history alone. While the patient is being questioned the necessity for determining the many factors must be constantly borne in mind. Information must be elicited as to the mode and date of the initial attack, which will often bring out valuable clues. Should the description of the attacks be similar, the history of a typical one is sufficient, but frequently the sequence of events is helpful. The time when attacks occur, whether seasonal or perennial is very important in cases of hyperesthetic rhinitis, bronchitis and asthma. Many patients may describe their symptoms as "colds" which sometimes require careful study to determine whether these are true infections or recurring attacks of nasal allergy. The appearance of the mucous membranes during a typical attack readily differentiates the two conditions; the pale bluish grey, swollen turbinates of the patient with allergic rhinitis are in marked contrast with the red, inflamed appearance in cases of bacterial infection. The environment of the patient and the time of day when symptoms first appear should be carefully noted. The duration of the attacks, their frequency and severity and the effect of change of environment and medication will give further information. The amount of relief between attacks is of considerable prognostic value. Careful inquiry should be made to bring out the part that some primary or aggravating factor may play in the case. Thus, an attack of asthma may follow an infection, such as a cold, or

exposure to house dust, animal pets, the use of cosmetics, or the ingestion of certain foods. Occupation and environment of the patient sometimes are responsible for the exciting factors, such as the baker with wheat, the farmer with cattle, horses, chickens and grain dust, the beautician with orris root and cosmetics, dryness, wind or changes in barometric pressure may be important and physical agents such as heat and cold may have some relation to the attack. The length of time the patient has resided in his present quarters and the effect of any recent change should be brought out. Careful questioning should elicit a description of the house furnishings, especially those of the bed room, for the presence of possible allergens may be found in the rugs, carpets, bedding, upholstery of the furniture and contents of clothes closets. The presence of pets, such as a cat or dog about the home and the kind of soaps, tooth powders and cosmetics being used should be disclosed.

The patient should be questioned as to what effect a vacation or a change of habits or environment has on symptoms. Prolonged hospitalization often results in the clearing up of the symptoms of certain allergic conditions due, no doubt, to the removal of the patient from an environment containing the exciting allergen.

A history of the manifestations of allergy in the past, especially in childhood, should be carefully sought. Recurrent colds or cases of bronchitis, urticaria, migraine, cyclic vomiting or eczema greatly assist in establishing an allergic background.

A careful and systematic review of the general health of the patient should be made. The existence of anemia, endocrine disturbances, increased nervous tension, digestive upsets, foci of infection, menstrual disorders and inadequate rest are factors of importance, the consideration and treatment of which is essential to achieve the best results from therapy. Any so-called idiosyncrasy to drugs such as phenolphthalein, aspirin, or quinine, should be looked upon with suspicion, for allergy to certain drugs is probably much more common than is generally supposed.

One of the outstanding facts concerning the allergic person is that he possesses a constitution different from his fellowman. That this allergic constitution is inherited from one generation to another is sufficiently established by the studies of Clarke, Donnally, Coca,[2] Balyeat[3] and others. Studies indicate that what is inherited is not the specific disease itself, but the allergic tendency which makes the descendants subject to become sensitive to anything. A positive family history of allergy forms a very useful criterion in doubtful cases. Investigation of the "family tree" should include at least four generations, the grandparents, the parents, uncles and aunts, brothers, sisters and cousins. A history of "catarrh", sinusitis, bronchitis, hives and eczema in other members of the family, though masked by the patients by other names, should be considered with suspicion.

PHYSICAL AND LABORATORY EXAMINATIONS

Allergic patients, apart from their manifestations of allergy, are usually healthy individuals; nevertheless, one should never omit the physical examination. A careful check up should be made of the eyes, nose, mouth, chest and skin. Attention should be directed to the possibility of focal infection in the sinuses, teeth, tonsils, prostate and bronchial tubes. Often it is necessary to differentiate cardiac from bronchial asthma; therefore, the heart should not be neglected in the examination. It is essential to note the general state of nutrition of the patient, nervous state and evidence of any metabolic disturbance.

Laboratory examination of the allergic patient should include the routine examination of the urine, a complete blood count with special emphasis placed on the differential study of the white blood cells for eosinophils. The presence of a large number of eosinophils in the blood smear is additional evidence that the condition being investigated is of allergic origin. Serologic test for syphilis should be made where this condition is suspected. The cytologic study of the nasal secretions in cases of hay fever and hyperesthetic rhinitis is important and may prove a valuable aid in diagnosis. The

classic work of Hansel[4] has shown that the presence of a predominant number of eosinophils distinctly favors the possibility of the condition being allergic. Continued absence of eosinophils, coupled with the presence of a large number of neutrophils, suggest an infection rather than an allergic process. In 1934 Vaughan[5, 6] revived Widal's "digestive hemoclasia" test, renamed it the "leukopenic index", and has since been advocating it as a diagnostic aid in food allergy. The more recent work of Loveless, Dorfman and Downing[7] showed that postprandial leukopenia was not found to be an index to incompatible foods. In cases where an element of infection is suspected, the erythrocyte sedimentation rate is of some value. The metabolic rate, gastric analysis and additional studies of the blood chemistry are not infrequently indicated. In cases of allergic bronchitis and asthma, routine x-ray examination of the chest should be made to exclude tuberculosis and bronchiectasis. Examination of the sputum for tubercle bacilli is, of course, made in doubtful cases and an autogenous vaccine may be made from the sputum when the symptoms seem largely explainable on a basic of infection.

SKIN TESTING

While the diagnosis of allergy in most cases is made on the basis of the history and is confirmed by physical and laboratory findings, it is essential that skin tests be performed mainly in an effort to determine the specific exciting agents. However, reliance on them alone is apt to be misleading. Frequently we hear patients relate that they have had twenty, forty or more skin tests and that "nothing was found." It must be emphasized, then, that if skin tests are to be made, they should be adequate to investigate thoroughly the particular allergy in question. One must remember a positive skin test does not always indicate that the patient is clinically sensitive to the allergen in question. A positive skin test will reveal, not only present sensitivities, but sensitivities existing and persisting from childhood, or may represent future sensitivity. Negative skin tests do not mean that the patient is not allergic and, finally, the size of the test reaction is not necessarily correlated with the degree of sensitivity.

There has been much written relative to the merits of the scratch and intradermal methods of testing. To secure the best diagnostic results both methods should be used. In cases of pollen sensitivity, it is advisable to use the scratch method first for the pollens and epidermals and some of the more toxic allergens, then recheck with the intradermal tests. In cases of food allergy, the intradermal method of testing should be employed since this method of testing is undoubtedly more sensitive. Intradermal tests, however, give a greater percentage of false or non-specific reactions than do the scratch tests and many reactions are read as positive when they are actually negative. This error can, to a certain extent, be overcome by proper knowledge of the quality and potency of the extracts used and the realization that the reactivity of the skin varies markedly in different patients.

In skin testing, it is not necessary to test each patient with every known allergen. The choice of allergens to be used in a given case depends largely upon the history and upon the condition present. The average patient is tested for reactions to the usual allergens in his environment and diet, making an average of from 150 to 180 tests. The time required is about three hours, which is usually spread out into three or four sittings. Extracts used in testing must be properly prepared and standardized for potency. In reading and interpreting the results of reactions certain standards have been suggested, but it is only through experience and a knowledge of the reactivity of various types of skin that a proper evaluation may be placed upon the reactions. Patch tests are limited in their use, but are of considerable value in cases of contact dermatitis where an external irritant appears to be the etiologic factor. A small amount of the suspected substance is placed on the skin and covered over with a piece of cellophane and adhesive tape. Reactions are observed at intervals of twenty-four, thirty-six and forty-eight hours. A positive reac-

tion reproduces, more or less, the original lesion.

OTHER DIAGNOSTIC STUDIES

Ophthalmic and nasal tests are occasionally used when skin tests fail to produce reactions or to confirm the results of the skin tests. These tests, however, are annoying and uncomfortable to the patient.

The passive transfer or indirect method of testing is extremely useful and is especially indicated in very young children, in cases of severe eczema, urticaria or other conditions where suitable areas on the skin are not available and in extremely sensitive or reactive skins. Blood serum is obtained from the patient and the serum injected into test sites on the back or arm of a non-allergic volunteer. After a lapse of forty-eight hours these areas are tested by the intradermal method with the suspected allergen.

In some cases where allergy to foods is suspected and skin tests are negative, or for some reason cannot be performed, the use of elimination diets should be employed. If, following the elimination of some food, the symptoms disappear, only to return when the specific food is placed back in the diet, it is possible to incriminate this food as a possible factor.

X-ray examinations of the sinuses and teeth are of great value in bringing to light foci of infection which may have a bearing on the case. A chest plate made following the intratracheal instillation of iodized oil is important to diagnose the presence or absence of bronchiectasis. In cases of gastrointestinal allergy complete roentgen study of the gastrointestinal tract is valuable to exclude the possibility of organic disease.

In the last analysis, allergy, like most disease, is the result of chemical changes and action in the body tissues. The logical diagnostic approach to the fundamental changes and reactivity of the tissues is dependent on learning more about the chemical state on which allergy rests.

SUMMARY

The procedure followed in the diagnostic survey of the allergic patient is outlined and described. Special emphasis is placed on the importance of a thorough history to establish the diagnosis of allergy, confirmation of which is obtained by the physical findings, skin tests, laboratory study and certain special examinations.

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DISCUSSION

Dr. W. H. Browning (Shreveport): There is very little to be added to this splendid discussion, as Dr. Edrington has covered an extensive subject in such a brief and concise manner.

Considerable emphasis was placed on the history, and rightly so. In no phase of medicine is a history more important. The statement was made that the diagnosis is not difficult, which is correct, may I add, if a history is carefully taken. As pointed out in the paper, it is important to obtain facts concerning the allergic attacks, such as time of day, time of year, mode of onset of symptoms, mode of onset of attack, description of attack, environment, temperature changes, and so on. It is then up to the physician to decide what factors are likely to be causing symptoms. The patient's idea of the causative factor or factors is likely to be in error. It is true that one may tell you that the proximity of a horse, cow, rabbit, cat, or dog will produce symptoms. He may go further and tell you that contact with dust will produce symptoms. Beyond these simple facts, one cannot rely on the history of the patient relative to causative agents. For example, a patient sensitive to feathers is likely to suspect a tree close to his window rather than the pillow he is sleeping on. A patient sensitive to wheat is likely to suspect foods that can be tasted when regurgitated, rather than wheat. He may suspect pork, onions, beef, cabbage, beets, and so on. Many such patients will eliminate one food after another from the diet until they are on a starvation diet. Another patient sensitive to wheat may tell you that everything he eats disagrees with him. It has never dawned upon him that he is

eating something at every meal to which he is sensitive. Such details are of little value in the allergic history, except in the first instance to reveal that the patient is having his symptoms at night, and in the second illustration to indicate that the patient is eating some food at almost every meal to which he is sensitive. In the first case, the allergist suspects those things usually found in the bedroom, such as feathers, dust, orris root, wool, and so on. In the second case, he suspects foods that are eaten often, such as wheat, milk, eggs, potatoes and rice. It is then his problem to find these specific agents.

In the paper it is indicated that the color of the turbinates is of considerable importance in the differentiation of allergic rhinitis from bacterial infection. In my experience this has not been true. If the membrane is swollen and pale, one can be sure that the condition is allergic, but if the membranes are red, other methods must be used for differentiation. The nasal smear and the history are of considerable help. Some physicians describe the turbinates as having a strawberry appearance, which they believe is always allergic.

I wish to emphasize what has been said about physical examination and laboratory examinations. Allergic patients may have disabilities other than allergic manifestations. As a matter of fact, these disabilities might keep a patient in a state of allergic imbalance, accounting for a bad result when a good result could be obtained by placing the individual in a good physical condition. In dealing with asthma or hay fever, if infections are found in nose, paranasal sinuses, or tonsils, they should be dealt with conservatively until allergic manifestations are under control.

I wish to add my condemnation to the "Five Dollar" allergic survey. By this I mean thirty or forty tests with extracts of unknown potency by an individual untrained in allergy. The patient usually feels that he has had a complete allergic study and feels that further quest for relief is useless. Such an examination is just as logical as passing a nasal tube into the oral pharynx, aspirating saliva, and claiming that you have done a fractional gastric analysis.

False positive reactions have been stressed from time to time, especially by those untrained in allergy, as a serious handicap to food testing. As a matter of fact, it affords little difficulty, because as stated in the paper, food testing is just a part of an examination. Assuming that such foods are eliminated from the diet, one should then test the foods by clinical trial and if they do not cause symptoms they are left on the diet. No harm has been done.

False negative reactions are troublesome, but fortunately do not occur often if one is using potent extracts and spends some time studying the reactivity of the patient's skin.

As pointed out in the paper, iodized oil may be useful in diagnosing bronchiectasis. It has little place in the treatment of bronchial asthma. It may be of benefit in the treatment of an associated bronchiectasis, but one should be conservative in its use here, because it has been known to produce a lipoid pneumnoia. I have films on patients showing large quantities of the oil in the bronchial tree serveral months after administration. Just what harm will result from this, I do not know, but I am sure that I would prefer not to have it in my bronchial tree. Many patients are sensitive to iodides. I have known of several patients becoming acutely ill as a result of the administration of iodized oil. I also know of one sudden death. If one is to use iodized oil, he should certainly test for sensitivity to iodides before administering it.

In connection with drug sensitivity, I wish to point out the dangers of administering morphine to asthmatics. Balyeat reported five deaths believed to be due to administration of morphine. I have had two deaths from the same cause. This is not because the patients are sensitive to morphine, but because it slows respiration and does not increase the oxygenation of the blood.

Dr. Allan Eustis (New Orleans): I wish to commend Dr. Edrington upon his broad view of allergy, more especially upon his emphasis of the importance of eliminating foci of infection. I would like to elaborate on the last sentence of the paper in which he said we have to know more of the chemical basis for allergy.

In 1912, I was able to produce experimental asthma in the lower animals by histamine. Histamine is formed by the putrefaction of histidine, an aminoacid occurring in varying quantities in all proteins. Sturin, the protein of fish, contains 12 per cent histidine and under putrefactive processes will yield large amounts of histamine. Urticaria can be produced by the local application after scarification of the skin with 1:1000 histamine solution.

One should control the diet so that the ingestion of histidine will be limited and prevent the formation of histamine.

Another point brought out by Dr. Edrington was the importance of a thorough physical examination. (Showing slides) Here is a man treated for eighteen months for asthma. You can see he had an aneurysm.

Here is another, the same thing, treated for asthma. Physical examination or x-ray would have cleared up the diagnosis at once.

Here is another patient treated for asthma which is a case of a diverticulum of the esophagus. He had dyspnea and wheezing at night; he did not have the characteristic wheeze of asthma.

Dr. N. K. Edrington (In conclusion): Dr. Browning, in his discussion, has brought out the fact that the appearance and color of the nasal

membranes are at times misleading. Although a swollen and pale membrane is usually indicative of an allergic process, we quite often see a membrane which is red and considerably congested. When one sees this type of membrane one may be sure that he is dealing with an infective process or a combination of allergy and a bacterial infection. Cytologic study of the nasal secretions will in these cases show a great number of neutrophils, but the number of eosinophils will be so increased as to make a diagnosis of allergy almost certain.

Dr. Eustis has referred to the relation of gastrointestinal toxemia to allergy and the possible role that histamine plays in these conditions. Experimentally, histamine when injected or applied to the skin produces reactions similar to those obtained in allergic persons when the specific allergen to which they are sensitive is applied locally or injected. Histamine is prevalent in the tissues of the body and is capable of being produced in the lumen of the intestine and lung and for this reason may play a very important part in the production of the allergic reaction. Histamine, however, cannot be considered as a primary factor as it is necessary that a specific sensitization to some substance be present to bring about the allergic reaction.

In closing I wish to leave this thought with you. In the treatment of an allergic disease as in the case of any serious illness, one must bear in mind the fact that you are treating an individual as well as a manifestation of disease and all factors such as an endocrine imbalance, disturbance of body chemistry and emotional influences should be given careful consideration. A physician who attempts to treat a patient while he neglects all factors, is as unscientific as the investigator who neglects to control all the conditions that may have a bearing on his experiment.

THE EYE AND ITS CARE*

LEON F. GRAY, M. D.

SHREVEPORT

To begin this paper a brief description of light and the origin of the eye will be made. Light is the agent which, by its action on the retina, excites in us the sensation of vision. Certain objects are termed self-luminous when visible in the absence of all other sources of light, as, for example, the sun, a candle, a glow-worm and luminous paint that has been exposed to light. Most objects are non-luminous, and become visible from the light received from other objects in return to our eyes. Light travels in straight lines which can be demonstrated in various ways. The term "ray" is applied to the path along which light travels from each point of a luminous object.

It is possible by suitable apparatus to cause the constituent rays in a beam of light to arrange themselves according to their wave length. When thus arranged, they are said to form a spectrum. Somewhere about the year 1675 Sir Isaac Newton shuttered up his window and on a beam of light entering the darkened room through a hole in the shutter, he put a prism in its path; thus was born the spectrum. The short waves in passing through the glass are retarded more than the longer ones and they are therefore deflected at a greater angle, so that all the constituent rays of white light arrange themselves linearly, according to their wave length. Four spectral areas are sharply defined, red, yellow, green and blue; between the red and yellow there is an intermediate orange. The other colors merge into one another and the blue gradually merges through indigo into violet.

THE GENESIS OF THE EYE

In some unicellular organisms the whole cell body reacts to light without any differentiation or specialization of structure (ameboe). The next step in evolution is to render a part of the undifferentiated protoplasm especially receptive; thus, Euglena viridis only responds to light when the anterior part of the cell body is stimulated. The third step occurs in the metazoa, when unicellular animals evolve the multicellular. The subdivision in the cells marks the commencement of intense specialization, with the obvious result that some of the cells in the outer layer become differentiated, so that they acquire a specific response to various types of stimuli.

THE DEVELOPMENT OF THE EYE

A. *Epithelial Eye of Invertebrates*: The primitive light cell, ectodermal cell differentiated from its neighbors in order to receive incident light and transmit a physiologic impulse can undoubtedly claim to form

*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 26, 1939.

the first type of eye. This eye can be divided into:

1. *The simple eye,* which may be composed of a single epithelial cell or many epithelial cells. The simple eye may therefore be defined as a single light cell or a group of such cells acting without functional association. The first stage is formed by a single cell; in the second stage a group of five or six surface cells is specialized and the third stage is evident when the epithelium becomes invaginated.

2. *The compound eye.* The highest perfection of the simple eye is an accumulation of many of its kind to form one organ and the provision superficial to this of a common dioptric apparatus.

B. *The Cerebral Eye of Vertebrates*: Intracellular conducting fibrils are present in protozoa, and when metazoa are reached, nerve filaments are commonly associated with the ectodermal sensory cells in coelenterates, an inter-connecting system of cells having the characteristics of ganglion cells which appear between the ectodermal and mesodermal elements making up the different parts of the organism, so that they work together as a unity. Later, this plexiform arrangement tends to become aggregated into ganglia, situated preferentially near the body orifices and other vital parts. When segmentation of the body occurs this system, too, becomes segmented. The ganglion associated with the eyes may now be called the optic ganglion. Thus the eye and the central nervous system are both ectodermal, but the eyes are connected to the central apparatus secondarily.

THE HUMAN EYE

The human eye is one of nature's greatest marvels. It gives us sight, the most valuable of all our senses. Through it we gain 85 per cent of our knowledge and control 80 per cent of our actions. The eye performs like a miracle, and surpasses any optical instrument ever made by man. It alone sees and is perhaps the most intricately and delicately constructed organ in the entire human body.

A camera and the eye work alike. You adjust the camera to any distance by moving the lens nearer or farther away from the recording film. The ciliary muscle, sometimes called the muscle of accommodation, shapes the lens of the eye, and thus focuses the image upon the recording retina.

The camera must be focused carefully in taking close-ups. The lens of the eye does the same thing and when one looks at a man 20 feet away, the normal eye needs no focusing.

THE EFFECT OF INCREASING LABORS ON THE EYES

For ages human eyes were used mostly for distance seeing, and there is little if any strain for normal eyes in looking at objects at a distance of 20 feet or more. As the distance between the eyes and the object on which they are focused decreases from 20 feet, the work of the eyes increases.

For many centuries, nearly all labor which required close use of the eyes was done outdoors. But, as refinement of materials and methods has progressed, it has become both desirable and necessary to do more and more work indoors.

Most windows in homes, offices, factories and other buildings fail to provide, at more than a few feet from the windowsill, sufficient light for eyes doing close work. Most artificial lighting is wholly insufficient for eyes doing close work, such as reading.

Less than 500 years ago, few people could read. Then came the printing press, and today few are the people who do not read. and most people read a great deal.

Almost everything used such as, clothes, furniture, newspapers, books and automobiles are the products of work done indoors; much of it by light that is insufficient and injurious. Even in the home, one is most fortunate if he has sufficient light for work or play. It is estimated that less than one per cent of all homes in America are adequately lighted.

By straining the eyes, a strain is put on the body, and the body and brain elicit symptoms of exhaustion as nervousness, headache and indigestion. Squinting, scowling and frowning are all signs of eyestrain.

From birth to death, the eyes are constantly changing. Changing eyes and

changing conditions under which eyes are used, account to a great extent for eye trouble. Not altogether, however, for some defects of the eyes may be due to heredity, to ill health, to accidental injury, or to habitual abuse. The first symptoms of eye trouble should be accepted as a warning.

After diagnosis, the advice may vary from a rest for the eyes to a course of medication, from a change in habits to an operation.

In many cases, glasses are prescribed. The most common optical defects usually lend themselves to correction by the proper fitting and using of glasses.

OPTICAL DEFECTS

The optical defects which ordinarily can be corrected or counteracted by means of glasses are:

2. Hyperopia, or far-sightedness.

2. Myopia, or near-sightedness.

3. Presbyopia, or lessening of accommodation, or old age.

4. Astigmatism, or difference in curvature of the eye in its horizontal and vertical meridian.

Evidences of the presence of these optical defects are blurred vision, headaches, eyeaches, digestive disturbances and many other symptoms, both local and general. Lenses frequently relieve these conditions and improve the vision.

THE USE OF EYES AND THE USE OF LIGHT

Sight depends on light. Today there are means of providing artificial light which meet every need of the eye and one can have artificial light for seeing that is essentially the equal of daylight.

The quantity and quality, character and color of the light largely determine the degree of visibility. The amount of light required depends on the kind of work one is doing with the eyes, and upon age.

SUGGESTIONS FOR IMPROVING LIGHTING

To obtain a better light from floor lamps, table lamps and desk lamps, it is recommended that one follow these rules: In a one-socket lamp, use a 100-watt bulb; in a two-socket lamp, use two 60-watt bulbs; in a three-socket lamp, use three 40-watt bulbs.

It is not sufficient to have a circle of light on the object on which the eyes are focused. There should be some general lighting, too, for balance. Otherwise, whenever the eyes are shifted, from a bright spot to a dark space, the eye muscles will be strained by the contrast. If you have 20 footcandles of light on your book, you should have at least four footcandles of light throughout the room. For general room illumination, indirect or semi-indirect lamps, either ceiling fixtures or floor lamps, contribute most to eye comfort. Fixtures with shades also may be used, and the shades should prevent glare.

The eyes, generally speaking, meet every test better in bright light than in dim light, and they are more susceptible to injury from underlighting than from overlighting.

READING AND WRITING

Considering the vast importance of reading and writing in modern life it is surprising that they have been so little investigated by physiologists and ophthalmologists. The forms of printed types are derived from manuscripts, and have been modified for technical reasons. Further advance has been almost entirely empirical, and even in the best presses more care has been exercised in obtaining aesthetic effects than in fostering legibility.

If we consider ordinary Roman printed characters we find that all capital letters extend above the line. Of the small letters thirteen are short, eight extend above the line (ascending letters), and four below the line (descending letters). There are thus twice as many ascending as descending letters, and in an ordinary page of print it will be found that of the long letters about 85 per cent are ascending and only 15 per cent descending. Examination of the short letters shows that their most characteristic features are in the upper parts. Hence, in reading, attention is specially directed to the upper parts of the letters, as is strikingly demonstrated by covering the lower parts of a line of print with a card. The print is almost as legible as if it were un-

covered. If, however, the upper halves of the letters are covered, it is almost, if not quite, impossible to read the print.

The ends of the lines of which letters are composed are commonly emphasized by means of serifs. These were doubtless introduced empirically, but the advantage in sharpness of definition has a physiologic basis. They counteract irradiation, and hence the visibility of letters is improved if the serifs are triangular.

The tendency of typefounders has been to minimize the differences between letters, probably with a view to greater regularity of line and uniformity in appearance. For example, round letters have been flattened laterally and square letters rounded. The loops of b, d, p, and q, have been equalized to o. If the lower parts of short letters are covered, the similarity in the topmost curves of a, c, e, o, s, of n and r, of h and b, or of n and p, is much greater in modern print than in some early samples.

Legibility is not determined solely by visibility in the physiologic sense of the term. Thus, the emphasis of some lines in letters, which originated in the use of reeds and pens of writing, increases legibility while diminishing visibility. A child learning to read depends upon physiologic visibility; hence there should be little difference between the breadth of the thick and slender strokes. As facility in reading is acquired, legibility is increased by diminishing the breadth of the slender strokes, and as smaller letters are used the diminution must be more rapid than that of the heavy strokes, so that the interspaces may not be unduly contracted. At the same time, the slender strokes must not transgress the limits of visibility at reading distance, and their distribution should be emphasized by suitably formed serifs. Hence, Jaeger small types are more legible than Snellen's.

The spacing of the letters and words has a considerable effect upon legibility. Roughly speaking, the interspace between letters should be at least as broad as the blanks in m or n, but round letters like o and e should have a slightly less interspace than square letters. Javal attributes a large part of the "remarkable legibility of English books" to the shortness of most English words and the consequent multiplication of blank interspaces. Of course, the spacing of words, and to a less degree of letters, in ordinary printing is very largely haphazard as far as legibility is concerned, the main object of the printer being to obtain general uniformity of appearance with rigid equality in the lengths of the lines. There is some difference of opinion as to whether "leading" or interlinear spacing is beneficial. Owing to the design of the blocks of type there is always a small space between the lower limits of descending and the upper limits of ascending letters, even without leading.

A line of print is read in a series of small jumps. At each pause a group of about ten letters is more or less accurately visualized; the movements are too rapid to permit of visualization while they are occurring. The number of leaps taken by the eye remains the same irrespective of the distance of the book, so long as this is consistent with legibility. A child reading makes more jumps in a line than the average, and the same applies to people reading a foreign language or correcting proofs. Attention is directed chiefly to the commencement of words, and words are not read by letters but by their general configuration. There is, therefore, a very important psychologic factor involved in the act of reading, quite apart from the interpretation of the meaning of the words.

Enough has been said to show that reading is a highly complex act, and the rules which can at present be devised for the avoidance of strain and discomfort involve a multiplicity of factors which have not yet been satisfactorily correlated.

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THE USE OF AN ANATOMICOPHYSIOLOGIC INCISION IN APPENDICITIS*

HENSON S. COON, M. D.

MONROE

No apology is needed for the title of my paper, since appendicitis itself is protean in nature. Appendicitis is killing 65 people every twenty-four hours in the United States, from 20,000 to 30,000 die annually, or more than one-half the number that die from auto accidents. It is taking the greatest toll from our youth and young adults; hence the great economic loss to our country.

Every city, town, and hamlet should institute active educational campaigns to awaken the laity to the dangers of appendicitis and especially the danger from delayed operation, and where purgatives and anodynes have been given. In Philadelphia, it is stated, best results have come from the teaching in grade schools.

The general mortality in the clean cases is less than one per cent, while in the ruptured cases it ranges up to 33 per cent. Incidentally, the United States has the highest mortality rate from appendicitis of any civilized country in the world. It is reported that 20 per cent of patients come to operation after rupture of the appendix and that only one out of seven persons is being saved who have previously been given a purgative and allowed to go on and rupture.

The responsibility can not be all placed on the laity. The physicians are failing to apply common knowledge in a great number of these cases when they use an ice cap and hope with the family that the member will get by without an operation. Procrastination spells death; do not gamble with death.

No set of rules can be laid down for the handling of every case, but the wisest of surgical judgment, skill and technic will be needed in the difficult cases.

The neglected patients need physiologic aid before instition of any surgical procedure, or what is commonly referred to as the modernized Ochsner regime, or preparation.

Symptoms frequently do not harmonize with pathologic developments and the theory of waiting for stabilization of peritonitis is plausible, but the practice of it is uncertain.

THE INCISION

The incisions I wish to discuss with you are not new and have the names of Elliott, Rockey, Davis, McBurney and McArthur associated with them, namely, muscle separating incisions.

The incision I particularly desire to call your attention to is a modified Davis transverse incision beginning at the lateral border of the rectus muscle on a level with the anterior superior spine, or slightly higher, and extending outward a distance of two or three inches down to the external oblique fascia, which is split in the direction of its fibers and mobilized. Then the internal oblique and transversalis muscles are separated in the line of their fibers and mobilized from the peritoneum, which is then opened in a transverse direction.

To appreciate the value of this incision, it is necessary to recall the anatomy of the anterior abdominal wall. The skin line of cleavage here runs in an almost transverse direction. The main body and strength of the anterior abdominal wall is made up of three long flat superimposed muscles taking origin from the ribs, lumbar and iliac bones, and uniting into one common fascia at the lateral border of the rectus muscle, then separating into one layer in front and one behind the rectus muscle, and extending to unite with its fellow of the opposite side to form the linea alba. The blood and nerve supply to the lateral anterior abdominal wall is derived solely from the intercostal arteries and nerves, as is that of the peritoneum.

It can readily be seen that in this incis-

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ion there is no division of important nerves, blood vessels, or muscles, and that due to the triple shutter action of the muscles the wound edges tend automatically to drop together, and there is no trophic disturbance to either the muscles or peritoneum, since there have been no nerves sectioned. The incision is over the center of surgical action, the base of the appendix and cecum in over 90 per cent of the cases; hence there is less trauma and less liability for further spreading of infection in the pus cases. The small intestines are seldom seen, and gauze packing is rarely ever needed, thereby avoiding the essential cause of adhesions. Where drainage is indicated, the same incision can be advantageously used as a dependent site and the wound left open without fear of evisceration, or later herniation.

The cecum is identified and the appendix removed inside the abdomen in most cases without disturbing the physiology of the cecum, or peritoneum. They are kept warm and moist naturally. The incision is not intended for exploration, but can be enlarged either laterally or medially, if the occasion arises, or abandoned if the diagnosis proves to be wrong. It is believed that the advantage of this incision over the McBurney incision lies in its ease of enlargement in the cases where the need arises for greater exposure.

When the patient is only lightly anesthetized, it has been proved that the lateral abdominal pull or tension is from 30 to 50 times as great as it is in the vertical plane. Such acts as coughing, sneezing, or straining, and abdominal distention are much less likely to cause serious postoperative sequelae and less tension on the sutures when the incision is in line with the direction of the greatest pull. Also tight strapping with adhesive tape is unnecessary, and the comfort of patients is aided in that respirations are not limited. The stay in the hospital is shortened, and thereby is the economic gain to the patient. Lastly, the infinitesimal scar appeals to most patients and should not be ignored by the surgeon.

Postoperative treatment in the correct physiologic use of fluids, and chlorides, as well as decompression, are essential.

SUMMARY AND CONCLUSIONS

1. The mortality rate from appendicitis is a national disgrace.

2. Public educational campaigns, especially in the grade schools, are important in getting patients to the surgeon early.

3. Sound surgical judgment, skill and technic in the management of the ruptured cases, is an essential, if the mortality rate is to be lowered.

4. The use of the muscle separating incision has appeared to lessen the sequelae as well as the mortality in the infected cases.

5. With refinement in technic, this incision is physiologically, anatomically, and surgically correct. There is no damage to the integrity of the abdominal wall.

6. Surgery can not compensate for dereliction of the family or physician.

7. There must be a healthy attitude of cooperation between all concerned.

8. A hasty operation can not amend for a delayed diagnosis.

9. A surgeon equipped with a knowledge of the necessary surgical strategy can save more lives in ruptured appendicitis than in any other surgical disease.

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DISCUSSION

Dr. D. B. Barber (Alexandria): The essayist certainly went into detail as to the anatomy of the abdominal wall. The transverse incision has its advantages.

There are a few things I want to stress: First, that an early diagnosis is much more essential

than any type of incision that you might use. I want to urge that we make ample incisions no matter what incision we use. Some one has said quite truly, that the incision heals from the sides and not from the end. Let us not make a mistake in trying to leave a little scar and handicap ourselves seriously in trying to do the thing that is the real reason for making that scar, this is removal of a diseased appendix. Make a good incision no matter where you make it. All of you have at some time, I am sure, thought you had an acute appendix and had something else; or thought there was a subacute appendix with redness to the end and found after it was out that it was gangrenous. Bearing these things in mind, we have to be careful. I believe it best to play on the safe side so I always use ample incision. Appendicitis is occurring frequently and in all probability will increase in incidence. I think that the doctor is perfectly right in that we should educate the people, laity and physicians, in the danger of delay.

Dr. Coon (In conclusion): It is an easy matter to start a discussion among surgeons about the advantages and disadvantages of the various incisions used for removing the appendix. Perhaps more credit is due to the attributes of the surgeon than to the incision which he uses. I think the main point is early diagnosis and an attempt to remove the appendix before it has ruptured. Precision in diagnosis will reduce both the morbidity and the mortality by eliminating the penalties of delay. In virulent infections the abdominal wall suffers permanent damage in proportion to the operative damage inflicted at the time of the operation. As I have stated, the mortality is less than one per cent in clean cases, whereas it rises to 33 per cent in ruptured and neglected cases.

DIAGNOSIS AND TREATMENT OF DIABETES*

MANUEL GARDBERG, M. D.

NEW ORLEANS

It is the purpose of this discussion to present as simply and as clearly as possible basic and practical facts which are of importance in the management of diabetes mellitus in the practice of medicine. The management of diabetes is essentially a matter of great simplicity and every attempt will be made to avoid cloaking it in its traditional and false complexity.

*Read before the Orleans Parish Medical Society May 8, 1939.

DIAGNOSIS

Diabetes is first suspected when the urine of the patient is found to reduce Benedict's or Fehling's copper solution. The fact that the urine gives a positive test with Benedict's or Fehling's solution is not diagnostic of diabetes. In addition to renal glycosuria, pentosuria, emotional glycosuria, alimentary glycosuria and pregnancy glycosuria, another group of circumstances must be remembered as often being responsible for the positive test with the copper solutions. One is the fact that most patients use for the collection of specimens of urine poorly washed or entirely unwashed bottles discovered in their so-called medicine cabinets. Among these there is a high incidence of those which have contained or still contain mouth washes and cough syrups in both of which reducing substances or glucose itself is present in large quantities. A less frequently guilty circumstance, but one more important because the error occurs in the physician's office or in the hospital itself, is the fact that some of the lubricating jellies used in catheterization and in vaginal examination contain reducing substances in large quantities. Therefore, if catheterized specimens are to be used for examination for sugar, either for diagnostic purposes or during the control of the postoperative or coma case, one must be certain that he uses a lubricant which does not reduce Benedict's solution.

Failure to find sugar in the urine does not rule out diabetes. There are diabetics, particularly of the milder and older groups, who seldom show a positive Benedict reaction, and on whom blood studies must be made in order to determine whether or not diabetes is present. In this connection it is also important to call attention to the fact that the prevailing popularity of the early morning specimen of urine as the material most suited for rountine analysis militates strongly against the discovery of diabetes for it is the one least likely to contain sugar, in most cases. A specimen collected about 11 a. m., three hours after breakfast, is less misleading.

The final diagnosis of diabetes mellitus rests on blood sugar studies. In some cases determination of the fasting blood sugar suffices; in others a glucose tolerance test must be done. Contrary to older opinion which placed the upper limit at 120 mgm. per c. c. in non-diabetics the fasting venous blood sugar may reach 140 mgm. per 100 c. c. of blood. Ordinarily if the fasting blood sugar is found to exceed 140 mgm. per 100 c. c., the patient is generally considered a diabetic. Of this practice two statements might be made: (1) In medicine it is generally unwise to adhere too accurately to arbitrary standards of normality; and (2) it is equally unwise to permit an important diagnosis to rest on a single observation or determination of any kind without any other check, particularly if the clinical picture is not very classical, as, in diabetes, it often is not.

If the fasting blood sugar is found to be 145 mgm. or even 150 mgm. the diagnosis of diabetes is not justifiable for the variation from the normal is too small, and might easily be exceeded by the average laboratory error. Secondly, even if the fasting blood sugar is 200, it should be checked at least once, again because of the possibility of the laboratory error. Finally, one should always be suspicious of, and cause to be repeated, all high blood sugars in juveniles and children in the absence of glycosuria, for in these age groups untreated diabetes is practically invariably accompanied by marked glycosuria.

If the fasting blood sugar is 140-150 mgm. or less in individuals showing glycosuria, a glucose tolerance test must be done. Minor confusion exists in the matter of the dose of glucose to be used; some give 50, others 100 gm., while still others use the more desirable 1 gm. per kilo of body weight. In adults this probably is a matter of little importance. In the usual tolerance test blood sugars are made before, one-half hour, one hour, two hours, and three hours after the administration of the glucose. Urine specimens are collected at the same times. In the non-diabetic the venous blood sugar returns to the normal fasting level within two hours after the administration of the glucose. In the diabetic the blood sugar does not return to the fasting level in two hours and although it may be dropping at this time it may actually be rising in severe cases. At this point it is important to emphasize the fact that the greatest height which the glycemia attains during the test, the so-called "peak level" is a matter of considerably less importance than the duration of the hyperglycemia. This is true because: (1) Ordinarily we never learn the actual "peak" level, the determination of which requires blood sugar estimations at five minute intervals, and (2) many normals reach "peak" levels of 200 or 225 mgm. and yet return to normal within two hours (Peters). They are certainly not diabetic. One might ask why carry the test three hours if the criteria for diagnosis are observed in two? The third hour blood sugar determination often serves as a check on the two hour blood sugar which frequently is the first one which drops below hyperglycemic levels.

As might be expeced, borderline curves are at times encountered and repeated observation is necessary before any conclusion can be drawn. It must be remembered, just as in the case of the standard of normal fasting blood sugar, that although the criteria of normality of the glucose tolerance test are derived from a large volume of experience, they still are more or less arbitrary when applied to the individual, and minor variations must be allowed for.

If the glucose tolerance curve is non-diabetic in type, together with the attending urinalyses it will usually aid greatly in identifying renal glycosuria, and alimentary glycosuria, matters outside the scope of this discussion.

TREATMENT

In uncomplicated cases the treatment of diabetes is a matter of great simplicity. The aims of treatment are the maintenance of a good state of nutrition, and at the same time the maintenance of as near an aglycosuric state as is compatible with the well-being of the patient.

As far as the state of nutrition is con-

cerned it may simply be stated that the total caloric value of the diet should be such that the individual should lose weight if obese, or gain weight if poorly nourished. Although obesity should be avoided it is doubtful that the old dictum calling for a maintenance of weight at a level of 10 per cent below average normal possesses any virtue whatsoever. It has been suggested, not entirely without basis, that this practice may lead to dwarfism in children, tuberculosis in the adolescent.

In private practice and in the Diabetic Clinic at Touro Infirmary all patients are at first routinely given a diet of 150 grams carbohydrate, 60 grams protein, and 50 grams of fat, for we have found that for average adult individuals in the South, where energy requirements are much less than in the North, this diet furnished sufficient total calories, and sufficient protein. Children usually require more than this if growth is to be maintained, and obese individuals require less if weight is to be lost. Increases and decreases in total calories are generally made by appropriate change in the carbohydrate of the diet. Although the fat may be increased if desired, it should not be decreased below 50 grams.

The diet is generally prescribed in the form of a model menu for each meal, arranged so that sufficient vitamins and minerals are supplied, and the patient is furnished with a list of substitutions for each of the articles of food on the menu. Few patients can or are willing to calculate their diets in terms of grams of carbohydrate, protein and fat. Household quantities are employed; weighing of food constitutes a great burden on the patient and offers no definite advantage as recompense.

A specimen of urine is collected before each meal and at bedtime and each is examined daily with the qualitative Benedict's solution. Since knowledge of the number of grams of sugar in the urine is of no value in determining the severity of the disease or the dosage of insulin necessary, quantitative analyses have been discarded.

If acetone is present, or if the patient is emaciated, or if the specimens are not devoid of sugar within a week's time, or are not continuing to clear up, insulin is begun. The dose is determined entirely by trial and error, starting with a dose of 5 or 10 units (regular insulin) one half hour before breakfast and a slightly smaller dose one-half hour before supper. These doses are simply increased every two or three days until all four specimens are sugar free. At times a third and fourth dose may be necessary in severe cases. In most cases two doses daily suffice. It will be noted that no mention has been made of the sugar estimations in connection with the treatment. This matter will be taken up more fully in another connection.

After the patient has been sugar free for several weeks it often becomes necessary to reduce the insulin dose. This may be done arbitrarily or at the first sign of hypoglycemia. Unfortunately the first sign of necessity for reducing the dose may be a sudden and rather severe hypoglycemic reaction. The patient should be taught to recognize the early symptoms of hypoglycemia and how to combat them, and he should be advised to communicate with his physician the knowledge of the occurrence of the attack.

Much discussed in the past has been the matter of distinction of hypoglycemic from diabetic coma. Actually all that need be said is that if any doubt exists one should inject 20 to 50 c. c. of 50 per cent glucose into the veins slowly. If the patient awakens shortly, the coma is hypoglycemic. If it is diabetic coma he will not awaken, but no harm will have been done. If he is in the hospital a specimen of blood for sugar determination should be taken before the injection is made, for at times insulin shock induces coma of long duration on an arteriosclerotic basis. However, under no circumstances should the glucose injection be delayed until the blood is analysed.

PROTAMINE INSULIN

Practically every feature of the treatment of diabetes either has been at one time, or still is, a subject of great controversy. Protamine insulin is simply the lat-

est of these. One group maintains that protamine insulin, at times supplemented by regular insulin, is applicable to all diabetes; another group finds it only applicable to; (a) mild diabetics requiring only 15 to 20 units of insulin or less, and (b) to a rather small proportion of the moderately severe and severe diabetes. With the latter group of authors my own experiences coincide completely and at present I try protamine insulin on: (a) Mild cases requiring less than 30 units of insulin daily in order to eliminate one of the injections and (b) in patients who require three or four doses of regular insulin (for a few do well). In some of the latter, strangely enough satisfactory control is maintained for a few weeks and then is lost entirely.

I do not subscribe to changing to protamine insulin in persons who do well on two doses of regular insulin, except in a very, very occasional case in which factors peculiar to the individual's occupation or other circumstances make it greatly advantageous that he take one dose of insulin daily if possible. Most of this group of patients, and they constitute the majority of diabetics, remain better controlled, in my experience, with regular insulin. Protamine insulin, even if successful, offers only one advantage; a possible reduction from two injections to one a day. I do not subscribe to the idea that there is any special virtue in maintaining the blood sugar at a low level during the entire 24 hours, even if protamine insulin did possess this alleged property. It must be remembered that no one has ever yet proved that spilling a little sugar occasionally, even every day, is harmful to the diabetic and it must be, by the same token, that rigid control of blood sugar has likewise never been proved to be of any value.

It is this latter consideration which has led most of us, in the practice of medicine, to follow the urine in the control of diabetes and to pay practically no attention to the blood sugar. The estimation of the latter is occasionally valuable when it is suspected that the blood sugar may be falling to too low a level at some particular time of day. The above statements apply as well to postoperative and coma cases as to the management of uncomplicated cases.

The existence in the literature of such diametrically opposite opinions regarding protamine insulin is a bit difficult of comprehension. Were either based on limited experience this circumstance alone could be invoked as an explanation. As a matter of fact, however, each opinion arises from a wealth of experience. Only one suggestion might be made in this matter: that it is possible that the experience of those whose work is confined to institutional diabetic care and whose follow ups are obtained by letter only, might be expected to be apparently different from the experience of those who live close to their patients and keep them under their own personal supervision constantly or a least for a longer period.

SURGERY IN THE DIABETIC PATIENT

While at the present time the diabetic patient is not nearly so poor an operative risk as he was a number of years ago, the idea that he can be operated upon with impunity is very far from the truth. At the time that surgery is required in most cases the person is generally 55 to 70 years of age, presents marked arteriosclerosis, arteriosclerotic heart disease and nephritis and often has hypertension. In addition he often has an enlargement of the liver which may be due to the cirrhosis.

If the surgery is elective the diabetes should be kept well controlled on an adequate diet for ten days to two weeks before the date of operation. If one is not inclined to take Ravdin's work on the importance of glycogen storage in liver function too seriously he should carry out this preoperative preparation at least on the basis that a well-nourished patient is a better operative risk than one who is poorly nourished, as is every uncontrolled diabetic.

Such elective cases properly prepared should not be given infusions and extra insulin the night before or in the morning before the operation. Such a procedure is of no value and it introduces the danger of

insulin shock during or just after operation, an occurrence usually of grave consequence.

If the surgery is not elective a short period of preparation depending upon the urgency of the surgical condition may be allowed, during which by infusion and proper dosage of insulin acidosis at least may be rectified. Often such a procedure is dangerous, and this must be left to the judgment of both internist and surgeon, and the patient is operated on after a moderate dose of insulin is given and an infusion started.

The anesthetics of choice are ethylene and cyclopropane, for these give rise to the least acidosis. Spinal analgesia preferred by some in amputation cases, is in my own experience too often followed by deep shock to be employed except where heart failure or respiratory infection is present.

Postoperatively the patient is given infusions of glucose and saline and sufficient insulin to avoid acidosis. The urine is examined every three hours, being obtained by catheter if necessary. One must be careful to warn interns and nurses that if they must instil something into the bladder following catheterization they should avoid argyrol and potassium permanganate, as both of these interfere greatly with the Benedict tests. Incidentally, in patients receiving large amounts of prontosil a black reaction with Benedict's solution is generally encountered which also destroys the value of the urine analyses. Acidosis and marked glycosuria should be controlled, but the urine should not be rendered entirely sugar free until the fourth or fifth postoperative day. An attempt is made to keep enough sugar in the three-hourly specimens to give a green or greenish yellow reaction with Benedict's solution. This is done by using a three hour administration of nourishment and regular insulin according to a sliding scale based upon the urine examinations. Obviously the scale must be arranged for each case individually; when soft diet can be taken the patient is then stabilized as any other uncomplicated case.

This insistence on the presence of sugar in the urine during the postoperative period depends upon knowledge of the importance of avoiding insulin shock, which has been known for some time to be extremely dangerous at this time. Insulin shock does not simply add to surgical shock when it occurs, but seems actually to multiply its severity and its disastrous effects.

It might be well to point out here that when glucose infusions are given it is impossible to know how much insulin to give in order to "cover" the glucose. This depends upon too many incalculable factors including the rate of flow of the glucose solution. Attempts to "cover" fully such infusions usually fail and it is fortunate that they do. When such attempts are unfortunately successful they generally lead to severe insulin reactions as soon as the infusion is stopped. When giving infusions to these patients one should not attempt to "cover" the glucose they contain, rather, one should attempt to be careful not to cover it.

Late in the postoperative period, especially in patients with infections or in which much tissue has been ligated or cauterized, the insulin requirement may drop rapidly as healing occurs. Such patients must be watched very closely and insulin dose changed at the slightest indication of insulin reaction.

The frequent necessity for rapid change in insulin dosage, together with the uncertainty of retaining nourishment at this time, is sufficient basis for opposing the use of protamine insulin in postoperative cases.

SUMMARY

An attempt has been made to outline briefly the practical aspects of the diagnosis and management of diabetes mellitus. Discussion of complications has been avoided because of lack of time.

DISCUSSION

Dr. S. Chaille Jamison (New Orleans): Dr. Gardberg has made so many practical observations that he does not leave a great deal for discussion, but perhaps there are some things we can emphasize.

He has pointed out that the mere reduction of copper solution does not make a diagnosis of dia-

betes, especially if this occurs only occasionally. He has also pointed out that the lack of a reducing substance in the urine is not evidence that the patient has not a hyperglycemia, a point that gives us a great deal more trouble, especially in the older group. I think it is safe to say in reference to the younger group of individuals, under 35, if we examine different specimens during the day and the urine reduces those substances constantly, we are certain to be dealing with a true case of diabetes. On the other hand in the group over 35 and especially in the group past 40, if we console ourselves with the dictum that because the urine does not reduce a copper solution, especially morning urine, that this individual has not diabetes, we are taking a risk of a serious mistake.

Now, a word about protamine zinc insulin. I regret to say that I have persuaded a good many of my diabetic patients to switch to protamine zinc. I have regretted it and they have regretted it. I have come near to losing one life and I certainly feel that protamine zinc insulin should be used very rarely and only in the very mild group of diabetic patients. I think that we will see the time when it will be discarded entirely.

Dr. Gardberg spoke of the rigid control of the blood sugars. In the older group, I believe that we make a great mistake when we attempt to be too meticulous in this regard. As long as my diabetic, in the old group, has a blood sugar of less than 150 I am satisfied.

We have to deal with the problem of surgery of diabetics, which should be divided into three classes. First of all we have to deal with the known diabetic who is to have an elective operation. In my opinion, that individual should be rigidly controlled. He should furthermore not have an anesthetic by the respiratory route if this can be avoided. He should have no anesthetic likely to interfere with ingestion of food. This is not always possible but with modern anesthesia you can feed that patient properly and give insulin at the same time.

The next type of case is the diabetic who is subjected to trauma or emergency operation and it is only found at the last minute that that individual has advanced diabetes. Certainly in these cases it should not be our purpose to attempt to control the hyperglycemia or glycosuria. All we should do in these cases is to control the acidosis. In the course of three or four days after the patient has come out of shock and so forth, we then begin an attempt to control the hyperglycemic state on account of the healing of the surgical wound.

The other type of surgical case is the neglected diabetic or perhaps the diabetic who becomes arteriosclerotic and develops gangrene or infection. That brings up a question too big to discuss at the present time. It must be said though that where infection exists in this type of diabetic that the hyperglycemia and infection run hand in hand and usually we can not control the diabetes at all satisfactorily until the infected tissue has at least been thoroughly drained and all sloughs removed.

Finally in closing, I would like to say one word about bicarbonate sodium injections. We have been told for years to avoid bicarbonate injections. I believe that is a mistake. There is no quicker way and in many instances no more life saving procedure than the injection of 500 c.c. of bicarbonate solution. It will snap the patient out of deep coma more promptly than anything else I know, then you can proceed with control by insulin.

Dr. Allan Eustis (New Orleans): I wish to second what Dr. Jamison has said regarding the injection of bicarbonate of soda. I have, before the advent of insulin, seen diabetic patients in coma get up before you could even finish the injection of bicarbonate of soda. It does promptly overcome coma but before the advent of insulin, patients would lapse again.

One other point is in reference to glycosuria. In this city especially, an individual who has had a cup of strong, black coffee will often show reducing substances in the urine. Caffeine reduces copper solutions but the action may be due to a soluble glucoside that passes through unoxidized. Time and again we have found urine reduces Benedict's solution after the individual has had strong coffee. We should be on the lookout for that at all times.

Dr. Alfred Jacoby (New Orleans): In 1906 I was in consultation on a case and we then used sodium bicarbonate with success.

Dr. Manuel Gardberg (In conclusion): The only thing I would like to say in closing the discussion refers to the use of protamine zinc insulin, which at the present time is a matter of great controversy. Possibly the majority of the authorities state that protamine insulin should be used on every diabetic patient. There are of course dissenting opinions which are probably as important but these American authorities are almost insisting on the use of protamine zinc insulin in all patients and they are reporting that they have had failures in only a small percentage of the cases. These men, I believe, work entirely in institutions and I do not know how long they follow the cases individually. I do not know whether they have these results or apparent results simply because these patients are not followed long enough or if the results are actually obtained. I think that it stands out that their basis of insisting on the use of this material is that it is supposed to keep the blood sugar at a level closer to the normal fasting during the entire 24 hours of the day than does the regular insulin. Now, even if that were true, and according to our experience it is not, it is difficult for me to reconcile the principle on which the practice is based with the fact that these same individuals

use as their standard of control the appearance daily in the urine in 24 hours as much as 10 per cent of the carbohydrate intake of 24 hours.

Lawrence and Graham, in England, are at the present time advocating very strongly that the diabetic not be kept sugar-free and that the urine should contain some sugar during the day. They think that keeping these patients rigidly controlled is an error. Joslin is following this. It is impossible for me to understand how an individual can insist on protamine zinc insulin because it keeps blood sugar down during the entire 24 hours, and use as a standard of control, at the same time, the appearance in the urine of as much as 10 per cent of the carbohydrate intake.

Most diabetics get along on two doses of regular insulin a day. The only disadvantage is that they have to inject themselves twice a day. This is really not a tremendous hardship if the individual is trained correctly. I do not mean by this only training in the mechanics of hypodermic injections, but also the psychologic training. These people should be taught that they are as much like their fellowmen as possible. The difference between their lives and the lives of others must not be emphasized; one should encourage them and point out to them the many ways in which they may care for themselves. They must be shown that the diabetes is not such a great burden. The discomfort of the hypodermic injections should be minimized as much as possible. The same individual who objects to having to take these injections of insulin does not object at all to pulling a dull razor over his face and cutting himself in shaving, an operation that is certainly more painful and requires more time and trouble than insulin. This should be pointed out to these patients.

THE MANAGEMENT OF DIABETIC ACIDOSIS AND DIABETIC COMA IN A GENERAL HOSPITAL*

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Diabetic acidosis and diabetic coma are medical emergencies just are surely as is acute appendicitis a surgical emergency. Patients who are treated early, properly and adequately give gratifying results and those that are neglected almost invariably end fatally.

A knowledge of the underlying physiologic principles will enable the physician to handle these cases intelligently and reasonably.

In the presence of disturbed carbohydrate metabolism, fat metabolism becomes abnormal. Instead of the complete oxidation of fats to carbon dioxide and water, harmful intermediate products, the so-called "ketone bodies", are formed, namely, beta hydroxybutyric acid, acetoacetic acid and acetone. Hyperglycemia is but another manifestation of the disturbed carbohydrate metabolism and in itself is harmful only in a physical rather than chemical way, namely, by increasing dehydration.

The two organic acids, beta hydroxybutyric and acetoacetic, first upset the buffer mechanism of the blood, making the blood relatively acid, and then if their production continues unchecked, combine with the fixed alkalies and still further deplete the alkali reserve of the organism. Acidosis and dehydration depress the cerebrum and lead to stupor and coma; they stimulate the respiratory center and hyperpnea results; they disturb the circulatory mechanism both centrally and peripherally, and circulatory collapse may occur.

Dehydration is due to the spilling of the excess glucose in the blood through the kidney and to the elimination of the sodium salts of the organic acids by the same route. A large amount of water is required to keep these substances in solution and the water must come primarily from the blood stream and ultimately from the tissues. Polydipsia and polyuria are the clinical symptoms, and the withdrawal of fluid from the blood stream and tissues is responsible for the soft eyeballs as well as the rapid weak pulse, the low blood pressure, and in general the picture of circulatory collapse that these patients frequently present. An attempt will be made to show how each step in the treatment fulfills a physiologic requirement.

The technic which is advocated is not original, but rather represents an attempt to organize personal experience and observation with the experience and observations of others. The steps are divided into two groups: (1) immediate or emergency, and

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(2) secondary steps to be taken when the patient is started on the road to recovery.

FIRST STAGE

1. Blood is drawn and sent to the laboratory for the determination of glucose (fluorized blood) and of the carbon dioxide combining power (serum of clotted blood). The blood level of non-protein nitrogen (fluorized blood) may be of diagnostic value, especially in older individuals, while blood chloride determinations (oxalated blood) are sometimes of interest.

2. As soon as the diagnosis is made, 40 to 60 units of regular (unmodified) insulin are administered subcutaneously.

3. At this time, an infusion (venoclysis) is begun. The solution used is five per cent glucose with one per cent sodium chloride. To each 100 c.c. of solution, 25 to 30 units of unmodified insulin are added. The rate of administration depends on the circulatory status and the age of the patient; in circulatory collapse, the rate should be faster, while in the aged, the rate should be slower.

4. External warmth in the form of hot water bags and blankets is applied.

5. Gastric lavage is of value as a prophylaxis against acute dilatation of the stomach and to remove undigested food material.

6. An enema or colonic flush is indicated in the presence of obstipation.

7. If the blood pressure is low or falling, and the pulse rapid and weak, circulatory stimulants are administered. These include caffeine sodio-benzoate gr. viiss (0.5 gm.), ephedrine sulfate gr. ¾ (0.05 gm.), epinephrine mviii-mxvi (0.5-1 c.c.) of a 1:1000 solution or one ampule of coramine. These drugs are given parenterally and repeated as indicated.

8. Insulin (unmodified) is repeated at half hour or hourly intervals in doses of 20-30 units, according to the response of the patient. The interval between the injections is lengthened as the patient begins to respond.

9. In order to supply the lost fluids and electrolytes, the intravenous administration of glucose and sodium chloride is continued until the patient is well out of danger and able to take adequate fluids by mouth.

10. The urine is examined for sugar and ketone bodies at regular, frequent intervals; for example every two hours. As long as the patient is unable to void, catheterization is carried out. Even though dextrose is being administered by vein, a progressive decrease in the amount of urinary sugar as determined by the Benedict test indicates that a favorable response to insulin is taking place. A diminution in the amount of acetone is of even greater significance.

Two points are worthy of discussion at this stage: first, how much insulin to give, and second, how much fluid to administer intravenously.

As much insulin as is necessary to bring the patient out of acidosis or coma should be given. The amount depends on the individual treated, and on the duration and degree of acidosis. Ultimately the practitioner will have to make this decision himself, but one thing should be stressed; the danger of an insulin reaction in a patient of this type who is being closely watched is rather remote, and frequent urinalyses are of distinct value in determining the response to insulin. Too many physicians err on the side of under-dosage.

In regard to the administration of fluids, not only must the daily requirement of approximately 3500 c.c. for the average adult be met, but in addition the fluids and electrolytes lost through vomiting, excessive urination and diarrhea must be replenished. The requirement of fluid is fulfilled by the parenteral, oral or combined routes. On every patient a record of intake and output of fluids and fluid excreta should be kept.

In old individuals the ravages of time on the cardiovascular system must not be forgotten. Fluids are given in smaller amounts by vein and at a slower rate so as not to tax an already damaged heart. Insulin is given more cautiously in order to prevent too rapid removal of glycogen from cardiac muscle fibers, a process that may precipitate an acute failure or coronary thrombosis.

SECOND STAGE

The second stage of management is less complicated than the first. When fluids can be taken by mouth, 200 c.c. of coca-cola, orange or pineapple juice (the equivalent of 20 grams of carbohydrate) are given every two hours. Unmodified insulin is given at two hour intervals on a "sliding scale", based on qualitative Benedict tests on the urine. For example, a sliding scale which will serve as a working basis is:

BENEDICT TEST ON URINE	AMOUNT INSULIN TO BE GIVEN
Brick red	20-30 units
Orange or yellow	15-20 units
Cloudy green	5-10 units
Clear green or blue	none

This regimen is carried out for 12 to 14 hours, and usually by the end of that time, the patient can be handled as an ordinary diabetic who requires stabilization, and the discussion of this procedure is beyond the scope of this paper.

One step in the above plan may be criticized by some; namely, the administration of a five per cent solution of glucose by vein to an individual already having hyperglycemia. It is felt, however, that an isotonic solution of glucose is not only a convenient vehicle for supplying fluids by vein, but what is more important, a supply of glucose is given which is readily available for metabolism and is a margin of safety against insulin reactions.

There are two "do nots" that should be mentioned: (1) Protamine zinc insulin should not be used because too long a time elapses before it begins to act; (2) hypertonic solutions of glucose or sodium chloride should be avoided for parenteral use because of the possibility of causing further dehydration.

In reviewing some forty odd cases of diabetic acidosis and coma that have been admitted to this hospital, it was found that eight deaths occurred from these causes. The chief precipitating factors leading to acidosis were infections, especially of the respiratory tract, gastrointestinal upsets and voluntary discontinuation of insulin. The highest blood dextrose found was 840 mg. per cent, while the lowest carbon dioxide combining power was 4.7 volume per cent. The largest amount of insulin required to bring a patient out of coma was 1020 units, and this same patient received 8500 c.c. of fluid parenterally in about 30 hours. The smallest amount of insulin which aroused a patient from coma was 50 units. The younger individuals apparently responded more quickly to therapy, all other things being equal. The duration of the acidosis or coma was found to be important as a factor, in that the longer the duration, the more intensive and more prolonged was treatment necessary.

CONCLUSIONS

In the management of the patient with diabetic acidosis and diabetic coma it is important that:

1. Adequate amounts of unmodified insulin be administered.
2. Fluids and electrolytes be supplied, preferably by vein.
3. The circulatory status be closely observed, and the fact be kept in mind that circulatory collapse is probably the most frequent cause of death in diabetic coma.
4. A well trained nursing staff be available for the execution of the plan of treatment outlined above.

BACILLUS PYOCYANEUS MENINGITIS*

REPORT OF SIX CASES

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Purulent meningitis due to *B. pyocyaneus* is infrequently observed in the average practice or for that matter in the average hospital. The organism itself is rarely seen in a pathogenic role. When secured on culture, this micro-organism is or-

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dinarily considered as a contaminant. However, a considerable number of infectious states have been recorded in the literature in which this bacterium was the responsible agent.

REVIEW OF THE LITERATURE

Vaugh, Beck and Shelton[1] reported a case of idiopathic *B. pyocyaneus* meningitis in 1931. This is the only such case reported. In their comprehensive review of the literature, and the one by Evans[13] in 1933, it is pointed out that Chaufford and LaRoche[6] in 1917 probably had listed the first case. It developed after intraspinal therapy in a case of tetanus. They pointed out its relatively benign course, the lack of septicemia and the resulting cure. However, in 1932 Ghon[3] reported a case that occurred in Berlin in 1905 secondary to infected spina bifida. Apparently this was the first case of meningitis, without generalized infection, with *B. pyocyaneus.*

B. pyocyaneus, according to the three authors quoted above, was found by Castle,[2] in 1893, to be a primary invader in hepatic disease, endocarditis, and meningitis; by Rolly in 1906 in pyelonephritis, perityphlitis, fistula, mastitis and ophthalmitis; by Frankel in 1917 to be present in only 13 cases out of 12,000 autopsies; by Gaucheraud and Piquard in 1928 in the ventricles of the newborn child whose mother had an endometritis; by Chari in 1926 to occur as a meningitis and pericarditis; by Cook who agreed to the above findings in his article in Abts Pediatrics; by Abadie and LaRoche in 1918 in a case of meningitis following trauma (patient recovered); by Valls, Polazzo, and Otterleughi (1928) in a case of meningitis secondary to gunshot wound in the spine (recovery after four months); in 1911 by Schlagenhaufer who had five cases of meningitis following spinal anesthesia; and in 1924 Kleine and Kock observed a case of meningitis in a three-year-old child who had a local infection in the mouth.

In 1925 Levy and Cohen[4] reported a case of meningitis in a 32-year-old patient with central nervous system lues who recovered after four months of lingering illness. He was treated by intraspinal autogenous blood serum given on three occasions. They commented on the green color of the spinal fluid.

In 1931 Vaugh et al[1] reported the case of idiopathic *B. pyocyaneus* meningitis with fatal termination after thirteen days' illness. This patient gave a long history of preceding headaches. It is highly probable some one did a lumbar puncture prior to the one done by the authors. No mention is made to the contrary in reporting their case.

In 1934 J. F. D. Shrewsbury[5] reported a case of *B.pyocyaneus* meningitis in a 34 year old woman secondary to spinal anesthesia with percaine. The symptoms began 24 hours later. The patient was discharged and returned fifteen days later with purulent meningitis. Recovery took place in six weeks. The disease was characterized by recrudescence of meningitis and fever. The treatment was repeated lumbar punctures. In this report comment was made as to the low virulence of the organism.

In 1923 Sonnerschein[6] reported a fatal case of pyocyaneus meningitis in a robust man with a course of only eleven days. Abadie and LaRoche[6] treated their patient with autogenous intrathecal serum given three times. Their patient recovered. In 1924 Schneider and Hans' patient recovered in eighty-four days.

In 1936, from this hospital, F. Evans[13] reported three cases of *B. pyocyaneus* meningitis resulting from lumbar punctures. The first patient had symptoms shortly following the puncture and was diagnosed six days later. Death resulted in ten days. The second patient presented severe headaches and fever on the second day following the contaminating tap but the disease was not diagnosed for ten days. Recovery occurred in six weeks. In the third case lumbar puncture was done three weeks before admission to this hospital. Headaches, vomiting and fever did not occur until five days before admission. The patient had a subarachnoid block and spinal fluid was removed from the cistern. The outcome was fatal.

B. pyocyaneus has been studied experimentally[7] in animals with the results as follows: (1) Small doses injected into the skin cause abscess formation in the guinea pig and larger doses cause septicemia; (2) the genito-urinary tract is the most susceptible system in the laboratory animal; (3) it is a primary invader in septicemia of chickens and autumnal disease of the caterpillar; (4) in Gay's large volume it is classified as having potentialities as a primary invader when resistance is low and infecting dose is large; (5) this organism is said to form a bacteriophage in infections of fowls.

The authors have recently had four cases of pyocyaneus meningitis develop on their service and have observed two other cases that occurred simultaneously on another service.

CASE REPORT NO. 1

J. M., a colored male, 24 years old, entered the hospital because of an increase of the frequency of epileptiform seizures which had been present for eight years.

Physical examination on admission showed a well developed and nourished male without any evidence of meningitis or other physical abnormalities. On the second hospital day spinal puncture was done in the sitting position. The fluid was normal in every respect. On the third hospital day the temperature was elevated and headache was noticed. On the fourth hospital day typical signs of meningitis developed. The lumbar puncture showed cloudy fluid from which *B. pyocyaneus* was cultured and which had a cell count of 3,000, most of the cells being polymorphonuclear leukocytes. The white blood count was 15,400 with a Schilling shift to the left. Blood culture was negative.

The patient soon became delirious; the temperature remained high and he took fluid and food poorly. Prontosil undiluted was given intrathecally, intravenously and intramuscularly. As soon as the patient improved to such an extent that oral medicine could be given sufanilamide, one gram three times a day, was given daily, along with equal quantities of sodium citrate, for the rest of the hospital stay. Five transfusions were given as a supporting measure. Lumbar drainage was done once or twice daily throughout his acute illness. The first two weeks of the sickness was stormy, with delirium and coma, and recovery was slow. The temperature became irregular, slowly swinging curves, taking a day up and a day down. Several febrile days would alternate with afebrile days. The subjective feelings of the patient were little altered by the height of the temperature except for increased headache. However the cell count of the cerebrospinal fluid corresponded conversely with the temperature. The patient was discharged after 92 days in the hospital. No epileptiform seizures occurred until the day before discharge. The patient returned three weeks after discharge with jaundice, presumably acute catarrhal, which soon disappeared.

About three weeks later the remaining cases entered the neurologic or medical wards, all on the same floor except C. G. The spinal punctures, which resulted in the development of these five cases, were done within two days by three different interns or residents.

CASE REPORT NO. 2

A. R., a 27 year old colored male, was admitted August 11, 1938 and discharged October 23, 1938. Mother stated he had been unusual in his behavior for six or eight months. There was considerable talking to himself, snapping of fingers, increase in temper, withdrawal to himself, and day dreaming. He had complained of chronic headaches all of his life. He was considered as a case of schizophrenia by the psychiatric staff.

Physical examination showed no significant abnormalities. The lumbar puncture done on August 12 was entirely normal. An increase in headache on August 14 was ignored. On August 15 there was an elevated temperature and on August 17 syncope occurred. On August 18 stiff neck and clinical signs of meningitis occurred. Repeated lumbar punctures showed cloudy fluid from which *B. pyocyaneus* was grown. White blood cells were 14,700. The patient was given prontosil intrathecally, intravenously and intramuscularly for three days, then sulfanilamide, one gram four times a day, with equal parts of sodium citrate was given. On August 23 the temperature dropped and marked improvement was noted. For the next two months he was nearly afebrile except for minor elevations, but the spinal fluid was persistently cloudy and the organism could be grown from it readily. Signs of meningeal irritation were absent even during times when there was marked cloudiness of the spinal fluid. The blood culture was negative. Patient was seen one month after discharge and except for psychic derangement was perfectly well.

CASE REPORT NO. 3

J. P., a colored male, aged 36, was admitted August 12, 1938 and discharged October 7, 1938. Patient was admitted in coma and status epilepticus. A history of convulsions, typical of idiopathic epilepsy which dated back for ten years, was obtained.

The physical examination showed only scars on head and tongue, a recent cut of the tongue, mild inguinal lymphadenopathy, and a penile scar. On August 13, spinal puncture was done and the findings were normal. On August 18 he complained of stiffness of the neck and headache but symptoms were considered muscular because of previous severe convulsions. On August 19, spinal tap showed cloudy (2200 cells) fluid and typical signs of meningitis were present. He was given sulfanilamide, gram one and a third, four times in the 24 hours. On August 21 the patient received 10 c.c. of prontosil intrathecally. On August 22 a culture of spinal fluid was positive, even though red with prontosil. August 24 sulfanilamide was discontinued; the temperature returned to normal by August 27 and remained so until his discharge from the hospital on October 7. Spinal drainage was also discontinued on August 24 and only an occasional tap for culture was made. Culture of spinal fluid for *B. pyocyaneus* was negative after August 20; blood culture was negative.

CASE REPORT NO. 4

C. G., a colored female, aged 29, was admitted to the hospital August 10, 1938 and discharged November 11, 1938. She was admitted to genitourinary ward because of "ulcer" of labia majora. In February 1938 she was admitted with a diagnosis of condyloma acuminatum (luetic) which was inadequately treated. Physical examination revealed a well developed and nourished woman.

On August 14 a lumbar puncture was done; studies showed it to be normal. On August 15 she had a severe headache, chill, fever and no signs of meningitis. On August 15 cloudy fluid (2000 cells) from which cultured *B. pyocyaneus* was obtained by lumbar puncture. Sulfanilamide one gram, three times a day, was given daily with frequent spinal drainage. She was afebrile on August 20. The subsequent course was one of alternating mild febrile periods with afebrile ones. Except for the headache the patient had no signs or symptoms of meningitis throughout her course. She developed a depressive reaction and had delusions of persecution and hallucination of visitation from heaven. She was discharged on the ninetieth hospital day, apparently well. Bismuth was used in treating the syphilis throughout her stay in the hospital.

CASE REPORT NO. 5

E. J., a colored male, aged 49, entered the hospital with the story that four or five days before admission he had chilly sensations and a feeling of fever. His left arm and leg became painful and progressively weaker. On the night of admission he had a chill which lasted one-half hour and he fell out of bed on the head but did not lose conscicusness. He had recently developed headache in left frontal region, had an epistaxis the day prior to admission; no previous antiluetic therapy had been received. Physical examination showed a paralysis of left arm (flaccid paralysis) and weakness of left leg. On August 11, blood Wassermann was reported positive. August 12 spinal tap was done; Wassermann positive and pressure normal (cell count not done). On August 13, he had pains in legs and feet; August 14 temperature went up to 102° and he had a chill. The white blood count was 12,500. The lungs were clear. The nurse described the condition of the patient as critical. On August 18 the patient was unable to void. On August 21 the temperature was considered due to malaria and was allowed to go unquestioned for therapy of syphilis.

August 26 signs of meningitis were noted and the spinal fluid was cloudy (6,800 cells). He was given 30 c.c. of anti-meningococcus serum. Patient was given supportive treatment with frequent drainage. From the fluid was grown *B. pyocyaneus*. E. J. progressed steadily downhill, with high temperature, stertorous breathing, Cheyne-Stokes respiration and he expired on August 31.

Autopsy, limited to head, showed that the brain weighed 1340 grams. There was an increase in cerebrospinal fluid, a thick greenish-blue purulent pus under the tentorium cerebelli, over the base of the brain, tip of the temporal lobes and also along some of the cranial nerves, as well as pus in all the sulci of this area. All ventricles were dilated and filled with pus. No evidence of osteomyelitis could be found. Microscopically marked perivascular lymphocytic cellular infiltrations were observed; also no evidence of necrosis within the brain substance. The exudate consisted of polymorphonuclear cells and a few monocytes (an acute exudate). Pathologic diagnosis: (1) meningovascular-cerebral lues; (2) *B. pyocyaneus* meningitis.

This case was diagnosed about two weeks after the disease had begun and the value of early drainage was lost.

CASE REPORT NO. 6

J. G., a negro male, aged 36, was admitted on August 8, 1938, to the neurology service. One week later the patient had experienced a severe pain in the abdomen at level of umbilicus, which caused him to vomit. He had been in Charity Hospital in 1934, 1936 and 1938 for bladder stones. He had been given "12 arm shots".

Physical examination revealed the right pupil larger than left, reacting poorly to light. Tenderness was present in the epigastrium. There was a suprapubic scar; prostate small and firm; reflexes normal. A lumbar puncture was done on August 10. On the next day he had headache, fever, neck pain. *B. pyocyaneus* meningitis was considered but a spinal puncture was not done because of the absence of meningeal signs and the findings

of pus in urine to explain the fever. On August 14 he experienced chilliness. On August 18 drainage from suprapubic scar began. He was transferred to a genito-urinary ward. The red blood count was 3,610,000; the total white blood cells were 15,050.

By September 7, on continuous catheterization and sulfanilamide, the patient had improved to the point of desiring to go home. On September 19 he was described as sleepy all the time. On September 22 the spinal fluid (980 cells) showed signs of meningitis. *B. pyocyaneus* was cultured. Spinal fluid was slightly cloudy. September 28 urine was nearly pure pus. September 30 hiccough developed. On October 7 the spinal fluid culture was negative; the cell count was 270 and the fluid xanthochromic. On October 11, coma deepened and he died. Treatment consisted of spinal drainage, sulfanilamide and supportive measures. No autopsy could be obtained.

It was felt that this death was largely a combination of meningitis and infection in the urinary tract. Spinal fluid was relatively clear for the last two weeks before death. This case also shows the ill effects of delayed diagnosis.

DISCUSSION

The four patients who recovered were correctly diagnosed within 24-36 hours and drainage by repeated rachicentesis instituted immediately. Sulfanilamide was given intrathecally in the form of undiluted prontosil to three of these (1, 2 and 3) immediately. This therapy was stopped shortly (in case 3) before culture was negative or before temperature was down. This patient had the shortest hospital stay of the four, although he was as seriously ill as the others in the early part of his disease.

The two fatal cases were undiagnosed for two weeks or more, although in retrospect it could have been done. It would seem that allowing the exudate to become inspissated and fixed in the subarachnoid space so as to prevent adequate drainage is significant. Also these patients had complicating diseases of a very serious nature, while the four patients who recovered had no handicapping disease.

The spinal fluid in these cases varied in color from a ground-glass through a greenish-gray to orange at the end of the disease. Presumably blood was largely responsible for the latter color although the organism does produce a yellow pigment. The fluid formed a coagulin within a few minutes and qualitatively had a very high globulin. Sugar was absent. Cell count initially varied from 600 to 6,000.

The organism was identified by ordinary bacteriologic methods and by its production of a bluish-green pigment.

The disease is characterized by a rather sudden onset of headache, malaise, chilliness, pain in legs or neck, stiffness of the neck, chill, fever and typical signs of meningitis. The organism is difficult to find early in the disease on direct smear. After the acute stage, the course is a long one with symptoms of malaise, headache, and fever at times. The fluid remains cloudy even in the afebrile periods. Cases 3 and 4 had periods with clear fluid and a negative culture, only to become cloudy again and grow organisms on culture. The exacerbations of fever are not easily explainable but it is felt that on afebrile days the infection is localized to the crypts and when the fever is present the general spinal fluid is infected by the dissemination of the pus held in the sulci.

The cases reported in the literature with recovery had a long hospitalization, 75 to 150 days. Cures were accredited to autogenous intrathecal serum in two cases; others to drainage. The four living patients we report were hospitalized 57 to 90 days.

Other purulent meningitides, pneumococcic, streptococcic, influenzal, *B. proteus*, have responded to greater extent more satisfactorily than formerly to sulfanilamide plus continuous drainage by catheter or lumbar puncture; also removal of foci of infection.[8] Continuous drainage by catheter or laminectomy changed recoveries from 8.14 per cent to 14.5 per cent for Furlow and Reynold,[8] before the days of sulfanilamide in meningitis secondary to trauma or foci about the head.

Sulfanilamide is excreted through the meninges in slightly less concentration than is present in the blood (Marshal[10]). The favorable results in hemolytic streptococcic meningitis following the use of sulfanilamide by Long and Bliss[11] and by G. Mitch-

ell[12] suggested its use in these cases. For this reason and the disadvantage of continuous catheter drainage, sulfanilamide and frequent drainage of cerebrospinal fluid by needle seemed the method of choice in the treatment of these patients.

The infection is believed to have been introduced by the lumbar puncture procedure. In all cases the pressure was read with a mercury manometer (the same manometer was definitely known to be used in five cases), while other cases that had lumbar puncture without pressure reading during those few days on the ward did not develop meningitis. Culture of the material used in the procedure was inconclusive. However, it is the opinion of one of us that it was introduced by the manometer, mercury type. The instrument is used unsterile except for a six inch sterile tip near the lumbar puncture needle. After the pressure is raised as in doing the Queckenstedt procedure the spinal fluid may enter the unsterile part of the instrument and as the pressure is released the contaminated fluid may run into the subarachnoid space. This, we believe, is the mechanism of the infection. We now use water manometers.

SUMMARY AND CONCLUSIONS

1. Six cases of *B. pyocyaneus* meningitis are reported. Four patients recovered, two died.

2. This type of meningitis runs a rather prolonged febrile course without any characteristic features in the temperature curve and is essentially benign in character.

3. The complaints and the physical findings are comparable to any case of meningitis irrespective of the etiologic cause.

4. No conclusion can be drawn as to the efficacy of treatment.

5. Early recognition and drainage seem to be essential to recovery.

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DISCUSSION

Dr. John H. Musser (New Orleans): I might say first that these cases all came over to the different teaching services after a diagnosis of meningitis had been made, and, as Dr. Wise has indicated, four were on our service and two on the L. S. U. service. I want to thank the L. S. U. physicians for the privilege of combining their cases with ours. I think only one or two things which are of primary importance in these case reports should be accentuated.

The result of treatment illustrates very beautifully indeed the advantages of early spinal puncture, and early and thorough drainage. I think this applies not only to this particular type of organism, but to any type of meningitis caused by any type of organism. If the diagnosis is made early, and if early drainage is instituted, the chances for recovery are very much superior than when the diagnosis is not early obtained.

The other thing which I think is important, and it has taught us a lesson, namely, that the mercury spinal manometer is an instrument fraught with danger and should be used extremely cautiously. As the result of our experience, the mercury manometer has been abolished and the water manometer is now used. The water manometers, as you know, can be thoroughly sterilized, which cannot be done with the mercury manometer.

I want to make just one or two little comments about these patients as I observed them on the ward. For one thing, we thought we had discovered a cure for epilepsy. One negro was having epileptiform attacks, 10-12 a day, before developing meningitis, and then he recovered to all intents and purposes. During this period he never had the slightest evidence of a convulsive seizure. We were quite pleased; we thought that we could give these people with epilepsy pyocyaneus meningitis and cure the epilepsy. Unfortunately, the epilepsy returned when the patient completely recovered.

In the patients who recovered, I think of inter-

est is the fact that in spite of their still positive spinal fluid which was not sterile, they had practically no symptoms whatever, looked well, ate well, slept well. Everything went well with them and yet infected spinal fluid, which under ordinary circumstances, could be considered as producing the severe form of this disease, was still present, and yet these negroes were doing very well indeed.

This is the largest series of cases by one or two that has been reported, and as Dr. Wise has indicated, the other cases, except for one, have all been patients who developed the condition probably by contamination.

Dr. George F. Fasting (New Orleans): Since, in a way, I am partially responsible for the spinal fluid cultures, I think there are some remarks which should be made by me and which would be of interest. You will recall that Dr. Wise referred to the cultures of spinal fluids being positive. In no single instance were direct smears of the fluid positive. Even though we did know the spinal fluids would give pyocyaneus in culture, each specimen continued to be negative on smears.

A similar spinal fluid, when submitted to the diagnostic laboratory, is likely to be reported as suspicious for meningococcus meningitis. This discrepancy may in part be overcome if we bear in mind a preceding spinal tap, yielding negative findings.

We are unable adequately to explain the failure of seeing the organisms in smear. There is a possibility because they are so small and represent the "G" forms, they are assumed by some investigators to be a filtrable phase.

There is a known tendency to phage formation in cultures of *B. pyocyaneus*, and this might have accounted for failure to see the organism. Such phages were not in evidence on the plate cultures.

As to the manometer, we had a chance to check this against apparatus used on the wards. There sterility was not satisfactory. Where the fluid is under pressure, little back suction may be expected, but I doubt if this holds under normal conditions. The manipulation of the tip attaching to the needle is no trifling matter. Having observed many contaminated normal spinal fluids, I have made it a point to request that the manometer not be used, if a bacteriologic report is desired of the spinal fluid.

The third point I would like to make concerns therapy. While in some of these cases sulphanilamide may be given credit, repeated spinal taps must be taken into account. The infection remains localized to the central nervous system, its duration is relatively long. It seems fair to assume that true antitoxins may be produced. The invasive capacity of the organism is poor and the use of phage suggests itself; yet it is well to remember that phage action may cause release of endotoxins and cause aggravation if the spinal fluid is not promptly drained.

Another possibility is the cautious use of specific vaccines availing ourselves of intradermal, subcutaneous or even intravenous routes. If it is desired to have different anatomic parts partake in the production of antibodies, theoretically the long duration of the infection permits this attempt.

Specific antisera for some of the toxic elements can be produced. Only experimentation on injecting this intraspinally or intravenously can testify to its merits.

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MEASUREMENT OF BLOOD PRESSURE

Taking the blood pressure has become such a stereotyped routine procedure that the average medical man frequently does it as much as a ritual as with thought and intelligence. Once in a while the physician gets into bad habits and neglects certain precautions which make possible the obtaining of the true pressure in the artery. Furthermore, the importance of the blood pressure is sometimes neglected. Very frequently it supplies the only definite physical finding which will make the diagnosis. Sometimes variations in the pressure are neglected. Further, there are a variety of ways of obtaining and recording the diastolic pressure. There is no general agreement as to what diastolic pressure is or should be when it is taken by the auscultatory method. Lastly, the immediate condition of the patient is sometimes disregarded.

Because of these several factors which may influence the taking of blood pressure, the American Heart Association and the Cardiac Society of Great Britain and Ireland have published a joint report which points out some of the technical fallacies of obtaining blood pressure. They also recommend methods of taking the blood pressure when there are cardiac irregularities and aortic insufficiency.

This Committee brings out these data: Blood pressure should be taken only after the patient has sat quietly and is physically and mentally at ease. It is immaterial whether sitting or lying. The pressure cuff should be of standard width, at least 12 cm. wide. The stethoscope should be placed over the brachial artery which is located by palpation. It is advisable to take a preliminary reading by palpation. The cuff is inflated relatively rapidly and the cuff is then deflated also fairly quickly. Inflation should go up about 30 mm. above the level of the palpatory systolic pressure and systolic pressure is then recorded at the highest level at which the successive sounds are heard. The pressure should be recorded according to the closest 5 mm. point; thus 125, 130, 140 and so on. The diastolic pressure is obtained by noting the changes in the sound that take place over the ausculted artery. As the pressure falls uniformly the sound is first increased and then gradually decreased, eventually disappearing suddenly. The diastolic blood pressure should be recorded at that point where the loud, clear sounds change sharply

to the dull, muffled sounds. The two Committees are not in accord as to the recording of the disappearance of the sound. Both are agreed that the diastolic pressure occurs when the sounds become dull and muffled. The American Committee believes that also should be recorded the time when the sounds disappear, thus in a patient who has aortic insufficiency the blood pressure should be recorded as 160/50-0, 50 being the true diastolic pressure and 0 representing when the sound disappears. The British Committee thinks that only the tonal changes are a true record of the diastolic pressure. As a matter of fact in this country most men record the diastolic pressure as at that time when sound disappears.

There are one or two other small details which may be mentioned. The mercury manometer should always have the mercury at the level of 0. The aneroid type of instrument should be calibrated against a mercury manometer from time to time. The arm should be free from venous congestion. When the first reading is rechecked the cuff should be completely deflated. When there is auricular fibrillation, only approximate blood pressure findings are possible. Systolic pressure is best recorded as at that time when most of the beats are heard. When there are ectopics they should be disregarded and pressure taken only during the period of regularity. The Committee recommends also that in speaking of the changes in sound that the term points be used instead of phases.

These notes and observations may seem decidedly elementary but even in a commonly used procedure carelessness may bring about results which are inaccurate and not dependable.

SHOCK TREATMENT OF SCHIZOPHRENIA

When a new remedy is introduced into medicine, if it comes with a certain blare of publicity, it is seized upon by innumerable men as a method of treatment which is almost infallible. This has been done repeatedly in medicine. The first reports are enthusiastic and uncritical; eventually the thinking man will analyze his and other results and find that unfortunately the method of treatment is not all that it was first believed.

A very splendid example of the above comments is in the shock treatment of dementia precox. Everywhere throughout the country this method has been employed by psychiatrists and statements were published claiming a ridiculously large number of cures. Now there seems to be a reaction to this overstimulated enthusiasm. At the recent meeting of the American Neurologic Association in Atlantic City it was brought out that there was considerable doubt in the minds of many psychiatrists whether there is any value to this method of treatment, whether the shock was induced by insulin or by metrazol. It was claimed that the result was only temporary and following a short-lived improvement ment the patient was as insane as before and that actually the brain was injured by metrazol. As well known a man as Stanley Cobb of Boston concurred in these observations. Other prominent psychiatrists expressed the opinion that spontaneous cures in institutions are greater in number than those brought about temporarily by metrazol. One of our well known local psychiatrists states that he is not impressed with the results of this treatment.

All these statements point to the fact that one should be extremely cautious; first, in reporting cures of patients who have not been followed for a sufficient length of time, and second, that this method of treatment has become decidedly open to question. Lastly, it should be borne in mind that the treatment is not free from danger and it is an extremely severe procedure.

TWO DISTINGUISHED PHYSICIANS

Two of New Orleans' most distinguished physicians died within a few hours of each other. They were both men who were strong upholders of organized medicine and men who had made for themselves out-

standing reputations as practitioners and as teachers.

GEORGE SAM BEL

Dr. Bel died Thursday, August 10, as result of coronary occlusion after a very short illness. He apparently was in excellent health and had been working extremely diligently on his plans for the completion of Charity Hospital when he had his attack.

Bel, a native of New Orleans, born January 3, 1872, graduated in medicine from Tulane University in 1893. He soon became connected with the Charity Hospital and Tulane Medical School and for more than thirty years taught in this latter University, retiring with the rank of Emeritus Professor of Medicine after filling the Chair of Medicine for some years. Upon the founding of the new Louisiana State University Medical School, Dr. Bel became head of the Department of Medicine in this institution, which position he held at the time of his death.

Bel was always interested in the Charity Hospital and it might truly be said to be one of his greatest life's activities. He not only was one of the members of the staff for many years but was also on the Board of Administrators, serving under seven governors and acting as Vice-president. In 1936 he became Superintendent and Director of the institution and through his ceaseless energy and splendid intelligence the hospital improved immeasurably in its service to the patients and its important function as an adjunct to the two medical schools. Bel was in good part responsible for the building of the new institution.

As a teacher, Bel was a clear thinker, a splendid talker and an excellent demonstrator. His lectures in physical diagnosis will be remembered by many. As a physician he was one of the outstanding diagnosticians and consultants in the South. He had an enormous practice which consumed much of his time. His keen, often intuitive ability to make a diagnosis made him a very competent physician. He knew what to do after he had established a diagnosis so that people flocked to him from far and wide.

In the death of Dr. Bel the State Society loses a man who, in the later years of his life was not quite as active as he was in midlife in the business of the organization. He was a Past President of the Society, holding this position in 1914-15. Not only organized medicine but also a large number of grateful patients will miss this outstanding clinician.

MAURICE JOSEPH GELPI

Dr. Maurice Gelpi passed away on the ninth day of August, after a lingering, prolonged sickness which entailed the inability to carry on his usual activities for the past several years.

Gelpi was born in New Orleans, July 15, 1883, took his preliminary education at Georgetown Preparatory School and graduated from Georgetown University, Washington, with an A.B. degree. He entered Tulane in 1905 and graduated in 1909 with the degree of M.D. He had his internship at the Charity Hospital and subsequently became one of the house officers, in which capacity he served for some years on the surgical staff. His connection at Charity Hospital was maintained for the rest of his active medical life. He was chief of one of the surgical services for years. In addition to these hospital appointments, Gelpi was connected with Hotel Dieu and other hospitals and taught surgery for some years in the Graduate School of Tulane.

From the time he became a member of the Parish Medical Society, he was active both in the Parish and State Society. In the Parish Society he served at various times as secretary, as treasurer, as librarian and he was made president of the organization in 1926. For some years he was a vigorous and valued member of the Journal Committee of the State Society following his term of office as editor-in-chief prior to the appointment of Dr. Walther to this position. His advice and his interest in the work of the Journal made him a particularly worth while member of the committee. He served on other com-

mittees of the state organization and always performed his work conscientiously and intelligently.

A surgeon of repute and reputation, Dr. Gelpi enjoyed a large surgical practice. He was beloved by his patients and by his innumerable friends. A man of extremely pleasant personality, always cheerful and smiling, his departure from this life will be a real loss to his patients and confrères.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

HUTCHINSON MEMORIAL CLINIC OF THE TULANE UNIVERSTY OF LOUISIANA

New Orleans

Scientific Session conducted by the Department of Urology, Dr. John G. Pratt presiding.

Survey of Three Hundred and Twenty-Five Cases of Syphilis (Dr. Frank L. Ramsay, Department of Urology): This survey does not cover all of the patients with syphilis in the Hutchinson Memorial Clinic; there are probably several hundred others that are not included who are, or have been, diagnosed and treated in other departments of this clinic. Three hundred and twenty-five records were reviewed and, of these, 38 were incomplete, that is, sufficient information could not be obtained from the record to ascertain whether or not the patient had syphilis. Incidentally, there were 163 males and 162 females, including the incomplete cases. Omitting the 38 mentioned, we have 287 patients, from which the subsequent data were obtained.

There were 24 patients with primary syphilis which were proved by dark field examination, of these four were females. Two hundred and sixty-three patients had generalized syphilis, being proved by positive serologic tests here and elsewhere, 89 having had a positive diagnosis before entering this clinic. Ninety-six patients had been previously treated and seven of these had no record of a previous serologic test, but a positive one was obtained here.

Ninety-seven patients had complications which required careful observation during treatment. They were as follows: Diabetes mellitus, four; tuberculosis, seven; cardiac disease, non-luetic, 15; cardiac disease, luetic, seven; pregnancy, 34; abortion, one; carcinoma, five; nephritis, two; thyroid disturbance, five; central nervous system disturbance, 17.

One hundred and three spinal punctures were done, of which 18 gave positive Wassermann of the spinal fluid, one patient having had two.

There were only 46 reactions to the treatment given which were noteworthy. Most of these reactions were mild in character, which either caused no interruption of treatment or temporary suspension of part of the treatment, mainly arsenicals. It is also noted that there were more gastrointestinal disturbances due to mapharsen than to neoarsphenamine in proportion to the number of injections of each. Only eight patients had dermatitis severely enough to discontinue all arsenical therapy, but none were exfoliating in character. There was one case of immediate collapse from which the patient made rapid recovery.

The disposition of these cases is very interesting. Nine died, of which three were carcinoma, one endocarditis, two tuberculosis, and three of cardiac complications. Three were released from the clinic at their own request. Thirty-four, or 11.8 per cent, are now under observation, having fulfilled the requirements of the course of treatment prescribed by the Cooperative Clinical Group, which the Department of Urology follows. Only 28, or 9.8 per cent, are still active in their treamtent; 30, or 10.4 per cent, were transferred to other clinics or to private doctors. The sad but true disposition of the remainder of the patients is that 183, or 63.7 per cent, are delinquent in their treatment, having left the clinic for some reason. Fifty-nine, or 32.2 per cent, of the delinquent patients left without having received any treatment whatsoever. Seventy-eight, or 42.6 per cent, left before receiving one course of treatment, that is, twelve arsenicals and twelve bismuths, or its equivalent. Some received one or two injections only and then became delinquent. Forty-six, or 25.1 per cent, left after having taken one course or more of treatment.

In conclusion, I may ask what has happened to these 183 patients, representing two-thirds of this series. Did they leave because of: (1) The idea of having syphilis? (2) Thinking they were disgraced by having syphilis? (3) Ignorance? (4) The idea of long treatment being too much and unnecessary? (5) Rough treatment on the part of the attendants of the clinic? (6) Having had some reaction from the treatment, and did not return? (7) False sense of security after having received some treatment? (8) Lack of personal interest?

The answers to these questions are beyond my scope, but if they can be answered, I think that more patients in the future will receive sufficient

treatment, and not an insufficient amount as in the past and present and be a menace to the public.

Dr. W. E. Kittredge, Department of Urology, discussed this paper, reiterating and emphasizing the chief points brought out by Dr. Ramsay.

Cardiovascular Syphilis (Dr. Roy H. Turner, Department of Medicine): The term cardiovascular syphilis, is not the equivalent of cardiac and vascular syphilis, but by custom refers to syphilitic disease of blood vessels which tends to lead, sooner or later, to cardiac or circulatory failure. Actually, the term, cardiovascular syphilis, is largely restricted to disease of the aorta originating about the vasa vasorum. In spite of the fact that the anatomic changes directly due to syphilitic infection are principally to be found in the aorta, there is a pronounced tendency for patients with such pathology to have cardiac or circulatory failure. Cardiovascular syphilis accounts for the second largest group of patients who come to serious difficulties because of the late lesions of syphilis. About 10 per cent of the untreated persons with syphilis develop clinical evidence of cardiovascular disease due to this infection. However, among the patients who die during the late stages of syphilis and come to autopsy, about 90 per cent have been shown, on careful examination, to have lesions which pathologists agree are those of cardiovascular syphilis. In other words, this type of pathology is the rule among syphilitics in the late stages although only about one out of nine or ten give clinical evidence of the disease.

Cardiovascular syphilis is conveniently divided into the following groups: (1) Subclinical; (2) aortitis uncomplicated by aortic insufficiency or aneurysm or both; (3) aortitis complicated by either aortic insufficiency or aneurysm or both; (4) syphilitic myocarditis, which is of such rarity as to be a curiosity. This classification may be further elaborated by a statement as to whether or not the patient suffers from cardiac failure. Of these groups, the first two are the most important due to the favorable prognosis if properly diagnosed and properly treated, and due to the difficulty of diagnosis and the likelihood of harmful effects of improper treatment. A presumptive diagnosis of subclinical syphilis of the cardiovascular system should be made in every patient with latent or old syphilis. This point of view emphasizes the necessity for diagnosing the stage of syphilis and not merely syphilis.

Moore and his associates have laid down the criteria for the diagnosis of uncomplicated syphilitic aortitis; that is, for the diffuse lesion of the proximal portion of the aorta without aortic insufficiency or saccular aneurysm. They have listed the following criteria in the order of their relative importance: (1) Teleroentgenographic and fluoroscopic evidence of aortic dilatation; (2) increased retromanubrial dulness; (3) a history of circulatory embarrassment; (4) a tympanitic, bell-like, tambour accentuation of the second aortic sound; (5) progressive cardiac failure; (6) substernal pain; (7) paroxysmal dyspnea. They believe that in a patient with known syphilis and without organic mitral disease, the presence of any three of these criteria is strong evidence for the diagnosis of uncomplicated aortitis and the presence of any two of them renders the diagnosis probable.

A physician should not undertake the responsibility for treating syphilis without reading carefully Moore's "The Modern Treatment of Syphilis." The principal points in treating cardiovascular syphilis are: (1) That the treatment should be begun gently, preferably with insoluble bismuth and iodides, continued for two or three months before any form of arsenical therapy is used. (2) Patients with congestive failure should receive no treatment of any sort until symptoms of failure have been relieved. (3) Even with a gentle beginning, one should never use big doses of arsenicals nor old salvarsan in small doses at any time. (4) Treatment which has been successful should be continued for long periods.

Some of the Problems in the Management of Neurosyphilis (Dr. H. L. MacKinnon, Division of Psychiatry, Department of Medicine): There is probably little excuse for the existence of neurosyphilis. In the first place, as our Swedish friends have shown us, syphilis can be pretty well controlled. Secondly, as Bennett and Lewis have suggested, there are, in all likelihood, definite changes in the spinal fluid early in the course of the syphilitic infection in these cases which later develop neurosyphilis. It is further believed that reversal of these spinal fluid findings by vigorous therapy would prevent the development of neurosyphilis. When this reversal is difficult to obtain such measures as fever therapy might produce the desired result.

The management of neurosyphilis includes three distinct yet closely connected problems. First, there is the problem concerning the extent of the disease process, and how well this can be controlled and modified. Second, there is the question of how much the syphilis has affected the personality of the individual who has acquired or inherited it, and what to do for this. Third, there is often the problem of social readjustment of the individual. The neuropsychiatrist is more interested in the individual who has the syphilis than in the syphilis *per se*.

Probably the easiest and most workable classification of neurosyphilis is its division into meningeal, vascular and parenchymatous types. If it is remembered that the most characteristic thing about neurosyphilis is its dissemination, there is no harm in recognizing distinct clinical entities. Much is to be gained in the matter of prognosis since it is likely that more irreversible damage would be

done by the parenchymatous type than by either of the other two.

There is no routine treatment for neurosyphilis. It is decidedly an individual matter to be handled cautiously. On the other hand, there are a few guiding principles. The meningovascular type lends itself more readily to treatment and the generally accepted form of treatment of this type of neurosyphilis is the administration of several ordinary intensive courses of therapy. Preference for the early courses is usually given to bismuth or mercury with the arsenicals coming later. In the parenchymatous type, the same form of treatment may be used, often in conjunction with malaria or fever therapy. It would seem that these latter two are indicated when chemicals cannot adequately reach the treponemata. However, it is to be remembered that the spirochetes, in deeper structures such as the lymph glands, are heat resistant and a combination of pyretotherapy with arsenicals and heavy metals is usually desirable.

Destroyed nervous tissue does not regenerate. Therefore, the most that can be accomplished by any therapy in neurosyphilis is an arresting of the disease process. Clinical improvement probably occurs in roughly about half of the cases because the strain and toxicity are removed from the damaged nervous tissue.

As to the personality factors involved, it is well known that syphilis of the brain notoriously affects the sensorium. The individuals so affected are disoriented and show faulty memory, as well as lack of judgment and insight. Surely, it is unwise to allow these people to accept responsibility. They are an easy prey for swindlers with all sorts of wild schemes. Although they may not be actually dangerous, they are a liability to their families. They must either be carefully supervised or institutionalized. Even though modern therapy will apparently "cure" some of these individuals, they certainly deserve to be checked at rather frequent intervals.

Once the patient has been treated and it is realized that no more can be done for his disease process, now arrested, the question arises as to his readjustment into society. This is obviously an individual matter. Certainly, one would not enjoy being a director in a company whose head was subject to faulty memory. Nor would one particularly relish the idea of riding sixty miles an hour down the highway in a car whose driver had a marked optic atrophy with greatly diminished visual fields. Therefore, the physician can act as a guide in suggesting the capacities and limitations of the one who is now really making a second "going out" into the world.

As Robinson has remarked, a physician should be interested in illness, not in just disease. For, when a person has developed syphilis, it is one thing to treat his disease, and quite another to realize how his disease affects him and those about him. It is to be remembered that this individual is a member of a family and a part of the community.

The Management of Syphilis as a Complication of Pregnancy: Review of Cases from Hutchinson Memorial Clinic (Dr. J. S. Herring, Department of Obstetrics): All authorities seem to agree that untreated maternal syphilis is one of the most common causes of fetal death in the latter half of pregnancy. It also stands high in the list of causes of abortion occurring early in pregnancy.

The incidence of syphilis in pregnant women varies considerably, depending chiefly on the class of patients examined. Beck states that the average incidence in clinic cases is 6 per cent, and that one per cent of private obstetric cases are syphilitic. Williams gives the incidence in white clinic patients as about 3 per cent, and we are inclined to believe that Beck's higher figure is due to the inclusion of colored patients.

In four-fifths of the cases of maternal syphilis, the initial diagnosis is made on no other evidence than that of a positive serology, but more detailed inquiry will usually elicit a history of a previous lesion or indication. It is important that a positive serologic test for syphilis, accompanied by no other diagnostic evidence, be rechecked to rule out error, but this should be done without delay, as early treatment is imperative in order that the fetus may receive the utmost benefit. In cases of repeated weakly positive tests, it seems best to prove with therapy. The prognosis for the mother, in either treated or untreated patients, is not believed to be affected by pregnancy, but in treated patients the prognosis for the child is greatly improved. In untreated women, each succeeding pregnancy tends to continue longer than its predecessor until at last a living, but syphilitic, fetus is produced. It is believed that in these cases, although the fetus may not immediately show signs of congenital lues, these signs sooner or later develop.

The treatment of the luetic pregnant woman is not varied because of the pregnancy; that is, the treatment following diagnosis is the same as it would be were the patient not pregnant. Pregnancy alone offers no contraindication to antiluetic treatment, but rather is an added reason for it. We will not discuss the routine treatment of syphilis. All authorities seem to agree that adequate treatment during pregnancy will insure the birth of a non-luetic infant in the majority of cases, although the mother may not be cured, and probably will not be. Antiluetic therapy seems definitely to have more effect on the luetic fetus than on the mother. The infants born of insufficiently treated women are usually luetic but are most frequently born alive and respond readily to treatment. Best results are obtained if the treatment is begun in the first six weeks, but this is rarely possible as neither the pregnancy nor the lues is usually diag-

nosed at this time. If treatment is begun and continued regularly before the fourth month, it may be considered adequate from the standpoint of results in the fetus. Treatment that is begun later than the beginning of the fourth month, even though given regularly, is considered inadequate. It is with this in mind that the following analysis has been made of the cases in this clinic: Total number of obstetric patients registered in clinic, 2,702; total number of positive Wassermann in these cases, 78, or 2.9+ per cent; number of obstetric patients delivered and followed-up, 2,033; number of patients with positive Wassermann delivered and followed-up, 23. Of the 23 patients, nine were adequately treated, 11 inadequately treated, and three had no treatment; delivered from these 23 mothers were: 28 living babies, no stillbirths, three abortions. Of the 28 living babies, 20 were apparently normal, eight were apparently syphilitic. Of the 20 normal babies, 12 were of adequately treated mothers, eight were of mothers treated, but inadequately. Of the eight luetic babies, all were of inadequately treated mothers, two of the mothers being entirely untreated. Two of the abortions occurred spontaneously in mothers who were receiving adequate treatment prior to and during pregnancy. The third abortion was criminal, and in an untreated patient.

Two patients were of special interest: One mother found to be luetic early in her first pregnancy and was given adequate treatment. She was delivered of a normal baby. She came to the clinic again for her second baby, having meanwhile discontinued antiluetic therapy. The Wassermann was positive early in this pregnancy, but the patient deserted for three months, then returned for inadequate treatment and delivery of a luetic, living baby. The other case was that of a patient who had pernicious vomiting of pregnancy in the second month, was hospitalized and had a transfusion from a luetic donor. She developed a luetic rash early in the fourth month and received treatment regularly thereafter; although technically she was inadequately treated, she was delivered of a normal baby.

The number of cases surveyed here are too few to make any definite conclusion justifiable. They would seem, however, to be in line with previously stated facts. It is unfortunate that the number of desertions in the luetic group seem to be out of proportion to the total number of cases lost. It is interesting to note that there were no stillbirths in this series, and one is tempted to believe that this, and the low number of luetic babies delivered, are due to antiluetic therapy, adequate or not. Certainly these figures would bear out the belief that antiluetic therapy should always be instituted, no matter to which stage the pregnancy has advanced.

Hereditary Syphilis (Dr. Richard P. Vieth, Department of Pediatrics): Syphilis in children and infants is usually considered to be hereditary or congenital in origin. Acquired syphilis does occur in children but it is relatively infrequent as compared to the congenital variety.

The incidence of hereditary syphilis is difficult to determine because of inadequate morbidity statistics and lack of data for the whole country; it varies greatly with race, social status and education. In hospital clinics, it is generally estimated that from 2 to 3.5 per cent of pediatric patients have syphilis. Jeans and Cooks, in St. Louis, after studying the placentas and cord blood Wassermann reactions in several thousand cases, and after careful follow-up studies of many of the children, concluded that the incidence in the children of the poorer white patients was 1.8 per cent; in the children of wealthier white patients, it was less than one per cent; among negroes it was 15 per cent.

Prenatal deaths and infant mortality from congenital syphilis are high. In almost one-half of the cases of women with untreated syphilis, pregnancy terminates in the death of the fetus or infant. The Cooperative Clinical Group, in a study of 431 patients, found that only 57 per cent of infants of mothers with positive Wassermann reactions escaped the infection, whereas 81 per cent of infants of syphilitic mothers with negative Wassermann escaped. Fetal deaths occur in the latter half of pregnancy, rarely before the fifth month. Syphilis is not a cause of early abortion as has been held in the past. Over one-half of children with syphilis who survive have late manifestations of the disease. Whipple and Dunham estimate that 80 per cent of pregnancies in untreated syphilitic women end disastrously for the infant.

It is now believed, in this country at least, that transmission from parent to child takes place in utero by way of the placenta. Infection of the fetus may occur at any time during pregnancy, but usually takes place in the latter half. There is no conclusive evidence that infection may be transmitted by way of the male sperm. A problem that frequently confronts the pediatrician is the diagnosis of syphilis in the child during the neonatal period. The syphilitic child is usually born without any clinical evidence of the disease; if diagnosis is delayed until symptoms appear, much valuable time is lost. The importance of an early diagnosis is obvious. Just as in adults, the best results of treatment are obtained when treatment is started early. There are several diagnostic procedures which may be employed to detect the disease in the neonatal period. In the beginning, we should demonstrate the disease in the parents; it is obvious that a child cannot have congenital syphilis if the mother does not have it. The diagnosis of syphilis in the parents is not always easy. Stokes states that 69 per cent of mothers and 50 per cent of fathers of syphilitic children show clinical or serologic evidence of the disease. Jeans

and Cooke found 85.5 per cent of mothers and 56.4 per cent of fathers of syphilitic children to have positive Wassermann reactions.

Opinions vary as to the significance of pathologic changes in the placenta and umbilical vein in cases of hereditary syphilis. Ingraham and Kahler believe that syphilitic changes in the placenta indicate syphilis in the mother, but not necessarily in the child. Jeans and Cooke are of the opinion that a syphilitic placenta means a syphilitic child. Examination of the umbilical vein yields valuable information. Phillip and Gornick have demonstrated spirochetes in the umbilical vein in the absence of placental changes. Ingraham found that when the dark field examination of the umbilical cord was positive for spirochetes, the child had syphilis in 100 per cent of cases; but syphilis in the child is not ruled out by a negative dark field.

The question is frequently raised as to the value of the various serologic tests on the cord blood and venous blood of the infant. Fildes first pointed out that transplacental passage of Wassermann antibodies occurred, so that a non-syphilitic child of a syphilitic mother might have at birth a positive blood Wassermann reaction. On the other hand, a syphilitic child may have at birth a negative blood Wassermann reaction. Fildes believes that a positive cord blood Wassermann indicates syphilis in the mother, and not necessarily in the child. Kohner states that a positive cord blood Wassermann reaction means syphilis in both mother and child. Jeans and Cooke found that the cord blood Wassermann reaction corresponded with clinical expectations in 63.3 per cent of cases.

Several investigators, employing the quantitative Wassermann reaction, have reported that non-syphilitic infants with positive Wassermann reactions showed a gradual weakening of the reaction until it became negative, whereas the reactions of syphilitic infants became stronger. As a rule, the Wassermann reaction in a syphilitic child is always positive after the second or third month. The positive reaction in a non-syphilitic child usually becomes negative before the second month. After the age of three months, a positive Wassermann reaction in a child means syphilis in almost 100 per cent of cases.

Syphilis in the neonatal period can frequently be diagnosed by x-ray examination of the long bones. Congenital syphilis produces a fibrosis in developing bones which interferes with blood supply, causing the formation of granulation tissue. Increased calcium deposition without subsequent ossification takes place within this granulation tissue. Caseation and softening with pus formation may occur. Osteochondritis, periostitis, diaphysitis and epiphysitis are the most common lesions. In the x-ray, the syphilitic changes in the bone are characterized by irregular serration of the epiphyseal line, small areas of destruction in the bone, both in the epiphysis and diaphysis adjoining the epiphyseal line, periosteal reaction usually of the parallel type arising from the diaphysis immediately above the epiphyseal line.

Time does not permit much discussion of the clinical picture of congenital syphilis. As a rule, no symptoms are present until several weeks after birth. Clinical manifestations before the second or third week mean an unusually severe infection. Snuffles and cutaneous lesions are the commonest modes of onset. The skin lesions appear as reddish brown or coppery macules and papules; there may be crusted and scaly lesions. The usual distribution is on the palms, soles, and diaper areas. In severe cases, the eruption may be generalized, with fissures of the mouth and anus. There are splenomegaly and hepatomegaly. Disease of the bones will be found in a fair percentage of cases. Clinically, the changes are characterized by thickening of the ends of the long bones, especially of the radius, ulna, and tibia. Motion at these points is painful and produces the so-called pseudoparalysis of Parrot. The lesions of late syphilis appear usually after the fifth year. They include eye lesions, especially interstitial keratitis, Hutchinsonian teeth, mulberry molars, eighth nerve deafness, saber shins, saddle nose, gummas, neurosyphilis; late involvement of bones: osteitis, periostitis, hydrarthrosis of joints. Cardiovascular lesions are rare.

In our Pediatric Clinic, we employ the continuous method of treatment. Alternating courses of sulpharsphenamine and bismuth salicylate in oil are given for at least a year. Further treatment may be indicated if the Wassermann reaction is still positive. Both drugs are given intramuscularly, the dosage being 20 mg. sulpharsphenamine and 2 mg. of bismuth salicylate per kilogram of body weight. Injections are given at weekly intervals; a course of either drug consists of eight weekly injections.

The prognosis in congenital syphilis varies with the time of onset of treatment, the type of treatment and its duration.

J. T. NIX CLINIC

New Orleans

At the meeting held in August, Dr. Lucy S. Hill presented the following paper:

THE PRESENT STATUS OF SPINAL ANESTHESIA

This article represents a review in brief of the literature on spinal anesthesia which has appeared in the past six months together with my own conclusion as to the place of spinal anesthesia in the list of possible methods of inducing anesthesia.

Spinal anesthesia is not new. As far back as 1893 the possibilities of inducing anesthesia by the injection of an anesthetic agent into the

subarachnoid space was recognized. By 1899 six successful operations on the lower extremities were reported, cocaine being the agent used. From this time on spinal anesthesia has been employed—the degree of popularity waxing and waning—the technic, agent and amount of agent used varying up to the present time. In contrast to the use of spinal anesthesia for operations on the lower extremities, it is now used in surgical procedure involving the chest.

The technic used varies with different anesthetists and, when one has found a technic that is easy and satisfactory to him, it is best to adhere to it rather than try each new technic offered. Spinal anesthesia has been used successfully in obstetrics including cesarean section. Either a hyperbaric solution as novocain may be used with horizontal position maintained for first fifteen minutes or a hypobaric solution as nupercain or spinocain, maintaining the lateral decubitus for five minutes on one side and then on the opposite side for five minutes. The results have been satisfactory in that pain is abolished, uterine contractions are not impaired, and the patient is cheerful and cooperative. In cases of primiparae with prolonged labor, border line pelvis, breech extraction and toxemia, or respiratory cases, delivery is simplified.

The general surgeon finds spinal anesthesia especially useful because of its superior relaxation, absence of irritation in the respiratory tract and small amount of toxic material to be eliminated. Spinal anesthesia is especially useful in operations involving the upper abdomen as gastro-enterostomy, intestinal resection, cholecystectomy. If it is feared the anesthesia will not be maintained for a sufficient period, a combination of novocain and some other longer acting drug may be used, or an inhalation anesthetic may be resorted to, preferably one of the gaseous agents as nitrous oxide, ethylene or cyclopropane.

Several articles regarding spinal anesthesia may be found in the journals each month, with many cases reported, and practically all giving the advantages of spinal anesthesia in various types of surgical operations because of its superior relaxation, ease of administration, and comparatively rapid elimination. Practically every author also stresses the necessity of proper preliminary medication, definite technic and intelligent observation of the patient during the entire operative procedure.

The possibility and the advantages of combining spinal anesthesia with a general anesthetic such as ethylene or cyclopropane are generally recognized. The absence of psychic trauma and nausea and, in the case of an operation lasting longer than the duration of the spinal anesthetic, the possibility of completing the operation under gas anesthesia without the necessity of starting a general anesthetic in the midst of an operation are considered as distinct advantages by some writers.

In the midst of many favorable reports on spinal anesthesia it is worth while to note an article by Dr. Bernard L. Kahn which sounds a note of warning regarding the influence of spinal anesthesia upon acquired immunity in syphilis. He reports a case in detail of an individual in good health before surgery under spinal anesthesia for a gangrenous appendix. A few weeks after surgery he developed a change of personality, vague pains which grew gradually more exaggerated. After a progressive downard course, during which an exploratory laparotomy under spinal was performed, the patient died. Both blood and spinal fluid gave positive Wassermann reactions.

SUMMARY

In closing I should like to make the following observations as to the status of spinal anesthesia at the present time:

1. Spinal anesthesia has found a very definite place in the list of possible methods of anesthesia.
2. The technic of spinal anesthesia has become more definite, the immediate dangers involved clearly understood and the necessity for careful watching of the patient appreciated.
3. The extent to which spinal anesthesia may be utilized has been extended to include thoracic surgery, difficult upper abdominal surgery and difficult labor cases such as cesarean section, version and extraction and breech deliveries.
4. The advantages of utilizing general gas anesthesia with spinal anesthesia are definite and recognized.
5. The routine use of spinal anesthesia without having the patient examined especially as to serologic status of the blood and also as to general physical condition is dangerous.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

NOTICE TO OUR MEMBERS

Due to the fact that a number of inquiries from various members of the profession throughout the state have come to the office of the State Medical Society concerning the collection and publishing of biographic sketches of doctors, we deemed it necessary as a medium of information for the members of the State Medical Society to secure a statement from the editor of the "biographical history styled as 'Physicians of Louisiana.'" Obviously the members should thoroughly understand that the Louisiana State Medical Society has not approved or endorsed the plan in any way, form or fashion. Following is his statement:

STATEMENT

"The biographical history styled as 'Physicians of Louisiana' as being surveyed by the Southern Research Bureau is a private historical document for the consideration of the individual doctors of the state.

"While this is not a society program, the management assures the doctors that they are applying every effort and that it is their utmost desire to make the work fully worthy of its representation, and has invited the President of the Society to appoint a committee for the purpose of reviewing and censoring this work prior to publication, to pass on the quality of workmanship and materials, and to be empowered to disqualify the biography of any doctor they consider unethical in his professional procedure.

"The sponsors have filed detailed information with the President and Secretary of the Society showing that this work was started on April 15, 1939, and report that approximately half of the state has been covered. No charges are being made for the recording of the doctors' biographies as such data are considered essential for the history and all doctors are being urged to supply biographical information in order to have the work as complete as possible.

"The managing editor of 'Physicians of Louisiana' has enjoyed several years of success in assembling and editing biographical and historical documents and desires to dedicate his Louisiana efforts to 'Organized Medical Scientists' for the purpose of promoting a closer relation among the doctors and in order to have a complete biographical recording for reference centers, archives and posterity."

(Signed) ROBERT L. RICE, Editor.

CHAIRMEN OF SCIENTIFIC SECTIONS

Bacteriology and Pathology
DR. W. R. MATHEWS
Shreveport

Eye, Ear, Nose and Throat
DR. C. L. COX
New Orleans

Gastroenterology
DR. M. D. HARGROVE
Shreveport

General Surgery
DR. G. W. WRIGHT
Monroe

Gynecology and Obstetrics
DR. D. C. McBRIDE
Alexandria

Medicine and Therapeutics
DR. T. C. PAULSEN
Baton Rouge

Nervous Diseases
DR. H. R. UNSWORTH
New Orleans

Orthopedic Surgery
DR. P. A. McILHENNY
New Orleans

Pediatrics
DR. R. T. LUCAS
Shreveport

Public Health and Sanitation
DR. R. H. ALLEN
Ruston

Radiology
DR. STAKELY HATCHETTE
Lake Charles

Urology
DR. EDGAR BURNS
New Orleans

Anyone wishing to appear on the program of the 1940 annual meeting in New Orleans should communicate with proper chairman immediately.

TRI-PARISH MEDICAL SOCIETY

The Tri-Parish Medical Society held its regular monthly meeting in Tallulah, Louisiana, on Tuesday, August 1, 1939, at 7:30 p. m.

The following scientific program was presented: "Convulsions in Infants and Children," by Dr. C. M. Jarrell of Epps, and discussed by Dr. E. D. Butler, Oak Grove, and Dr. T. P. Sparks, Newellton. A presentation, on "Pyuria in Children" was given by Dr. Guy Jarrett, Vicksburg, and discussed by Dr. G. S. Hopkins, Lake Providence, and Dr. H. S. Provine, Tallulah.

A. M. A. INDICTMENT QUASHED!

Justice James M. Proctor, upholding a defense demurrer to indictments, ruled on July 26 that the American Medical Association and its fellow defendants were not engaged in a trade as defined by the antimonopoly statutes. Counsel for the doctors had contended their activities could not be governed by the Antitrust Law, that they were engaged in a "learned profession" rather than a trade. On December 20, 1938 a District of Columbia Grand Jury, acting on evidence presented by

the Justice Department, indicted the American Medical Association, the Medical Society of the District of Columbia, the Washington Academy of Surgery, the Harris County (Texas) Medical Society and twenty-one individual physicians for violation of the Sherman Antitrust Law. These organizations and individuals, the indictment read, were "engaged in a continuing combination in conspiracy in restraint" of trade in hampering the activities of Group Health Association, Inc., for the District of Columbia, an organization established in 1937 to hire physicians and nurses and provide hospital care on a cooperative basis to government employees. Defense attorneys had contended that all their clients' activities were directed solely at the maintenance of the ethics and standards of the profession.

At the headquarters of the Association, officials, including Dr. Olin West, Secretary, and Dr. Morris Fishbein, Editor, said:

"The principles and policies of the American Medical Association do not forbid nor have they ever contemplated any opposition to a well considered expanded program of medical service, when the need can be established; neither is there any fundamental principle or policy which in any manner opposes aid to the indigent when indigence can be established.

"The American Medical Association has always welcomed investigation by any authorized agency of the nature of its organization or of the conduct of its work or of its activities, firmly reliant in the belief that every action taken by the Association has been in accordance with its constitutional organization in the interests of the public welfare for advancing standards and quality of medical service for the American people; and that at no time has it violated the established law of the federal, state, or municipal governments of this country. Moreover, by the very nature of its organization, it has preserved constantly the democratic principles on which the Government of the United States is founded and maintained."

NEW HEAD OF CHARITY HOSPITAL

Dr. Roy W. Wright has been appointed Director of the Charity Hospital of New Orleans by the Board of Administrators. This well merited promotion meets with the approval of the many friends Doctor Wright has made in New Orleans through his friendliness, tact and good common sense.

As assistants to Doctor Wright, Dr. Charles B. Odom will be in charge of the surgical division and Dr. Joseph O. Weilbaecher, Jr., at the head of the medical division. Both of these doctors have served for some years in the Charity Hospital in responsible positions and, likewise, merit their promotion.

DR. WRIGHT HONORED

A testimonial banquet was given in honor of Dr. Roy Wright, Superintendent of Charity Hospital, on the evening of August 24. The banquet was attended by some 300 physicians, many of whom spoke words of felicitation and good wishes to Dr. Wright.

MEDICAL DIRECTOR AT L. S. U.

Dr. Thomas C. Paulsen, of Baton Rouge, has been appointed physician to the Louisiana State University and medical director of its hospital.

NEWS ITEMS

The telephone number of the offices of the Louisiana State and the Orleans Parish medical societies and this medical journal has been changed to MAgnolia 4981.

Assistant Surgeon Albert L. Chapman, U. S. P. H. S., has been relieved from duty at Staten Island, N. Y., and will proceed to New Orleans for duty in the U. S. Marine Hospital.

Passed Assistant Surgeon Frederick J. Brady, U. S. P. H. S., has been relieved from duty in Washington, D. C., and will proceed to New Orleans for duty.

Dr. Ambrose H. Storck has recently returned from a visit to Surgical Clinics in England, Scotland, the Scandinavian states and the Continent.

At the invitation of The American Association for the Study of Neoplastic Diseases, Dr. Isidore Cohn will give an address at their meeting in Washington, D. C., on September 7, 1939. Dr. Cohn's subject will be "Carcinoma of the Breast in the Negro."

The Institute for the Consideration of the Blood and Blood-forming Organs conducted by the University of Wisconsin Medical School will be held at Madison, September 4-6, 1939. An excellent program has been provided and includes such distinguished speakers as L. J. Witts, Nuffield Professor of Clinical Medicine at Oxford; E. Meulengracht, Professor of Clinical Medicine at the University of Copenhagen; George R. Minot, Professor of Medicine at Harvard; Charles A. Doan, Professor of Medicine at Ohio State University; E. B. Krumbhaar, Professor of Pathology at the University of Pennsylvania; Hal Downey, Professor of Anatomy at the University of Minnesota, as well as many others of equal distinction.

The Mississippi Valley Medical Society will meet at Burlington, Iowa, September 27-29, 1939. Among others who will speak are Drs. F. F. Boyce, As-

sistant Professor of Surgery, Louisiana State University; E. A. Graham, Bixby Professor of Surgery at Washington University; A. E. Hertzler, Professor of Surgery, University of Kansas; Rock Sleyster, President of the American Medical Association. Many other equally well-known physicians will appear on the program.

The eighteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held September 5-8, 1939, at the Hotel Pennsylvania, New York City. Preceding these sessions, the Congress will conduct an intensive instruction seminar in physical therapy for physicians and technicians, from August 30 through September 2.

Assistant Surgeon General R. A. Vonderlehr of the Division of Venereal Diseases of the U. S. P. H. S. announces the publication of a folder for dissemination to the laity. This folder, entitled "You Can End This Sorrow," has to do with hereditary syphilis. Copies are available for one dollar per hundred and may be obtained from the Superintendent of Documents, Washington, D. C. Single copies are five cents.

The publishing house of P. Blakiston's Son & Company, Inc., specializing in scientific and medical books, has been purchased by Horace G. White from the Executors of the Estate of Kenneth M. Blakiston. This business was established by Presley Blakiston in 1843, and was continuously in the Blakiston family until the death of Kenneth M. Blakiston in 1937. The policies which have made this old established concern so successful will be carried on by Mr. White, who has been connected with the company for over twenty-eight years, under the name of The Blakiston Company. The officers are Horace G. White, president; Robert F. Bowman and Charles C. Norris, Jr., vice-presidents; Edmund J. Glaser, treasurer; and Edward B. Barnes, secretary.

PROFESSIONAL OPENING

There is an opening for anyone interested in the specialty of diseases of the ear, nose and throat to take over the office equipment and practice of the late Dr. George R. Beridon. Interested parties should communicate with Mrs. Beridon, 914 S. Court Street, Opelousas, Phone 822.

LOUISIANA STATE SUBCOMMITTEE ON APPENDICITIS

Dr. D. B. Barber, president of the Louisiana State Medical Society, writes that he is anxious to have the members of the State Medical Society aware of the work this committee is doing in the state. The committee consists of Dr. J. D. Rives, New Orleans, chairman, and the following members: Dr. Ambrose Storck, New Orleans; Dr. Charles McVea, Baton Rouge; Dr. A. L. Culpepper, Alexandria; Dr. George W. Wright, Monroe; Dr. Paul D. Abramson, Shreveport, and Dr. Walter Moss, Lake Charles.

The committee has sent out the following outline of what they propose to do in Louisiana:

OUTLINE FOR THE APPENDICITIS COMMITTEE SOUTHERN MEDICAL ASSOCIATION

A. Gather data from as many hospitals in your state (at the very least eight or ten, representative of urban and rural districts; beyond the minimum, the more the better). These data should include, in so far as possible:

1. Number of appendicitis cases (a) admitted and (b) operated upon. (This should *not* include cases in which other pathology is treated operatively at the same time, i. e., salpingitis and other pelvic trouble, gallbladder, stomach, etc.)
2. Stage of the disease, i. e., interval or prophylactic removal, acute unruptured, ruptured with walling off, and ruptured with diffuse peritonitis.
3. Duration of symptoms before operation, and when seen by doctor for first time.
4. Whether cathartic had been taken or not, when administered and by whom, i. e., layman, druggist, or doctor, and type of cathartic.
5. Type of incision employed, and whether appendix was removed or not.
6. Mortality rate, with as full data on any deaths as possible.
7. Average period of hospitalization, particularly contrasting average times necessary in unruptured and ruptured cases.
8. These figures should be on a year by year basis.

These data can be used as a yardstick to measure results in each individual state, and for comparison with figures, which can be furnished, representative of other communities, states, or the country as a whole. When the whole group of statistics from all the separate states is gathered into one group, codified, analyzed, and made available, they will furnish an invaluable source of information for planning the continuation of our campaign along the lines and in the directions most needed. (This will *not* be used, broadcast, for invidious comparisons.)

B. Through the public health services and the bureaus of vital statistics in the various states, find out the mortality per 100,000 population in appendicitis, and other diseases, i. e., cancer, tuberculosis, typhoid fever, diphtheria, pneumonia, etc., for example, which might aid in graphic presentation of the subject, both to laymen and medical men. Similar statistics can be furnished for other communities, states, the country as a whole, and some foreign countries, for comparison with those of any individual state, when the time comes to use them.

C. The information and educational efforts should be disseminated in so far as possible by the local, state and county medical societies, or at least by individuals assigned by them for that service, and under their auspices.

There should be periodic meetings, at least one a year, in which the program of the medical society should be devoted to phases of this subject, for the benefit of the professional membership.

There should be public meetings where health subjects, not necessarily limited to appendicitis possibly, should be ably and interestingly presented by chosen members of the profession.

There should be short radio addresses on health programs, sponsored, if possible, by the local medical society and the Public Health Service jointly, in which well chosen speakers touch upon salient points in the disease and the campaign against it.

There should be ethical, graphic, easily understood, and frequent brief rather than occasional lengthy, articles in the press. These should be featured as far as possible (as in the Cincinnati campaign).

There should be talks to the school children, probably mainly the junior and senior high school groups. It is probably here that the greatest good and the widest dissemination may be looked for.

In addition, no opportunity should be lost to draw in the aid of civic groups such as senior and junior Chambers of Commerce, Rotary, Kiwanis, and other clubs, women's organizations, Red Cross circles, Granges, etc. These could form the basis of most of the public meetings. The public meetings should be extended to the rural as well as the urban population, in so far as possible.

D. The size and constituency of the individual state committee will be left to the discretion of the individual State Chairmen. We would urge each one to consider the foregoing objectives when appointing his committee, however, and to remember that it is a state-wide, not a community, undertaking. With all the different phases to be covered, there would naturally be no limitation of committee membership to surgeons, or indeed to the profession. The best committee will be the one which can most efficiently disseminate the desired educational information through the channels above outlined.

E. The State Medical Society should be contacted immediately and informed of the proposed campaign, so that they will have full knowledge of, and be in full accord with the aims and objects which we hope to accomplish. Through them the constituent county and city societies can be contacted and informed, so that the whole movement may have the sanction of organized medicine in your state.

INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports of infectious diseases for the state, which contain the following summarized information: For the week ending July 15, the twenty-eighth week of the year, there were reported 366 cases of measles and 159 of whooping cough. Many of these reports were delayed and the figures do not indicate incidence during the current week. Diseases reported in numbers greater than ten were 124 cases of syphilis, 40 of typhoid fever, 38 of pneumonia, 34 of pulmonary tuberculosis, 31 each of influenza and cancer and 14 of hookworm disease. The typhoid fever cases showed a sharp increase to double the five-year average for this particular week of the year; eight of these cases were reported from West Carroll, seven from Orleans, and four each from Bossier, DeSoto and East Carroll parishes. The remainder, not more than one in any parish, were scattered throughout the state. Typhus fever was found in Calcasieu and in Iberia parishes. Syphilis again headed the list of reported diseases for the week ending July 22 with 103 cases; followed by 42 of typhoid fever, 39 of pneumonia, 36 of measles, 34 of gonorrhea, 27 of malaria, 26 each of cancer and whooping cough, 21 of pulmonary tuberculosis, and 14 each of hookworm disease and influenza. The majority of the typhoid fever cases occurred in West Carroll, Caddo, Webster, Richland, East Carroll and Ouachita parishes. Typhus fever was reported again from St. Landry, Calcasieu and Cameron. A case of poliomyelitis was listed from Caddo; one of encephalitis from Orleans. For the week ending July 29, there were listed 100 cases of syphilis, 40 of cancer, 38 each of pulmonary tuberculosis and typhoid fever, 34 of pneumonia, 29 of gonorrhea. This week the typhoid fever cases were pretty well scattered throughout the state. Webster, Richland, Bossier, DeSoto and Catahoula parishes were the only ones which had more than two cases reported. Typhus fever again appeared with one case from East Baton Rouge, while tularemia was also reported from the same parish. In the week ending August 5 were reported 278 cases of syphilis, 102 of whooping cough, 49 of malaria, 45 of pneumonia, 31 of pulmonary tuberculosis, 25 of cancer, 15 of typhoid fever and 10 of hookworm disease. Caddo with three cases and East Baton Rouge with the same number were the only parishes reporting more than one case of typhoid fever. One case of typhus fever was reported from East Baton Rouge, and in the following week, which came to a close August 12, there was reported one case from Calcasieu. Other diseases in numbers greater than ten were 116 cases of syphilis, 47 of pulmonary tuberculosis, 43 of whooping cough, 41 of pneumonia, 34 of cancer, 22 of malaria, 21 of typhoid fever and 18 each of gonorrhea and hookworm disease. Of the 21 cases of typhoid fever, three parishes reported more than two cases, Acadia, Ouachita and West Carroll.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending July 8 there were 140 deaths in the City of New Orelans divided almost equally between the two races. Fourteen of these deaths were in children under one year of age, with each race being represented by seven deaths. The week previous 141 deaths were recorded and the week after, closing July 15, the number jumped to 160, 97 in the white and 63 in the negro, and only nine in infants. For the week of July 22 the number of deaths had fallen to 140, divided 86 white and 54 negro. There were 17 infant deaths, 11 of which were among negroes. The following week, which closed July 29, saw only 132 deaths in the city, divided 75 white and 57 negro, and 14 infant deaths. There was a sharp increase in the number of people dying in the city during the week which terminated August 5. Of the 160 deaths which took place this week, 97 were in the white and 63 in the negro population. Twelve children under one year of age died this week of whom six were white and six negro.

JACKSON J. AYO, M. D.
(1869-1939)

Dr. Jackson J. Ayo, superintendent of the East Louisiana State Hospital, died August 17, after a prolonged sickness.

Ayo was born in 1869, attended Jefferson College and graduated from Tulane University Medical School in 1893. After practicing a short time in New Orleans, he moved to Raceland where he made a great success, not only as a physician, but as a prominent business man. Ayo's services to the State Medical Society were many and varied. For some years he was an efficient and impartial Chairman of the House of Delegates. He was active in his parish society and held nearly every position to which a man could be elected. He was a member of the State Board of Medical Examiners.

In addition to these connections in the medical society, he was an active member of the Knights of Columbus, Catholic Knights of America and the Holy Name Society.

Surviving him are his wife and four children, one of whom is a doctor who practiced with his father in Raceland.

GEORGE R. BERIDON, M. D.
(1891-1939)

Dr. George R. Beridon died in Opelousas July 28, 1939. Beridon graduated from Tulane University in 1915 and was licensed to practice medicine in 1916. He joined the Louisiana State Medical Society in 1918 and at the time of his death he enjoyed an excellent practice in Opelousas.

WOMAN'S AUXILIARY

Louisiana State Medical Society

For the information of Auxiliary members throughout the state, we print the names and addresses of officers, councilors and committee chairmen who comprise the governing Board.

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Respectfully submitted,
Mrs. Edgar Burns,
Press and Publicity Chairman

BOOK REVIEWS

Roentgen Diagnosis of the Extremities and Spine: By Albert B. Ferguson, M. D. New York, Paul B. Hoeber, Inc., 1939. Pp. 435. Price $12.00.

This monograph is the seventeenth of a series already published on roentgenologic subjects. It is divided into sixteen chapters in which the author gives a clear understanding of the many conditions, citing interesting clinical cases, which affect the extremities and spine. The chapter on non-osseous tissues contains comprehensive description of the many kinds of soft tissues which may cast diagnostic shadows when examined by the roentgen rays. In this chapter, particular emphasis is given to the value of the roentgen ray diagnosis of non-osseous conditions involving various joints.

The book is profusely illustrated and contains five hundred and twelve illustrations, most of which are clear and explanatory. Some fail to demonstrate clearly what is intended by the author on account of poor prints. To be of value, any book on roentgenology is dependent upon the clarity of its illustrations, since roentgenograms are presented to show actual pathology as it exists, and serve as a permanent record for future references.

The book, on the whole, is a good one, and it can be used to advantage by orthopedists and roentgenologists.

L. J. MENVILLE, M. D.

Allergic Diseases, Their Diagnosis and Treatment: By Ray M. Balyeat, M. A., M. D., F. A. C. P. Philadelphia, F. A. Davis Co., 1938. Pp. 547. Price $6.00.

This fifth edition is quite an improvement on the first which the writer was also privileged to review. Our late Dr. Scheppegrell is here given due credit as also is our Crescent City,—the latter for the effective weed laws adopted.

The book as a whole seems to be more for the laity than for scientists who wish to delve deeply into the subject of allergy. Hearst's saying that a good picture is worth a thousand words is frequently proved throughout its more than 500 pages.

Though the reviewer does not believe in the indefinite repetition of lipiodol instillation or the patient's application of it to his bronchial tree, yet the part of the book devoted to this subject has merit. Another section which the reader will find of use is that dealing with contact and allergic dermatitis.

Outside of these two parts the reviewer would consider the rest of the work as a resumé, good for a quick but short reference.

NARCISSE F. THIBERGE, M. D.

Gonorrhea in the Male and Female: By P. S. Pelouze, M. D. Philadelphia, W. B. Saunders Co., 1939. Pp. 470. Price $6.00.

In this revised third edition the author emphasizes the necessity of a correct diagnosis and gentle handling of the patient. Great stress is placed on the proper usage and the interpretation of the effects of sulfanilamide.

The book stresses the importance of a program of venereal disease control in the section on "The Medical Profession and Gonorrhea Control," and discusses many of the difficulties encountered.

MONROE WOLF, M. D.

Anemia in Practice: By William P. Murphy, A. B., M. D. Philadelphia, W. B. Saunders, 1939. Pp. 344. Price $5.00.

This volume represents the product of many years intimate contact with the anemic patient, and is to be highly recommended to those who wish a brief, thoroughly practical presentation of this subject. The information presented here is the result of a study of 578 patients with pernicious anemia observed by the author during the past thirteen years. This exemplifies the progress which is being made in this and allied fields of internal medicine because of the institution of specialty clinics. The work vigorously points out that disorders of hematopoiesis require careful study in a hematology station or in a blood clinic; inaccurate erythrocyte counts and hemoglobin estimations by non-acceptable methods furnish no diagnostic information, and lead to many therapeutic errors.

One cannot disagree with any of the basic principles of treatment presented here. Scattered throughout the text are statements which bring much satisfaction to the reviewer because they have not been so presented in other works of this type. For example: "no amount of anemia is too slight to warrant treatment." The inclusion of liver in the treatment of hypochromic anemia is another useful therapeutic guide. The author rightly minimizes the usefulness of bone marrow biopsies in the differential diagnosis of anemia.

The text is so arranged that a brief but thoroughly adequate presentation of hypochromic and normocytic anemias prepares the reader for a better understanding of the dominant theme, pernicious anemia. The criteria for diagnosis of this latter condition are simply discussed. The five chapters which discuss many phases of liver therapy are the highlight of this book. Interesting data concerning the comparative efficiency and cost of anti-pernicious substance supplied as whole liver or liver extract are given.

MORRIS SHUSHAN, M. D.

Landmarks in Medicine: (*Laity Lectures of the New York Academy of Medicine*): New York, D. Appleton-Century Co. 1939. Pp. 347. Price $2.00.

This book represents a collection of the addresses to the laity that were delivered at the third series of the New York Academy of Medicine. There are some seven essays in all. Two of these are on historical subjects by eminent historians, Dr. Francis R. Packard and Dr. James J. Walsh. A third might be spoken of as a modern historical dissertation. Written by Dr. Lewis Gregory Cole, who was one of the first to use x-ray, it tells the tale of what has happened with the x-ray since it was first introduced into medicine. This is an autobiographic sketch worth preserving for posterity. Dr. Reginald Burbank, discussing medicine and the progress of civilization, also delves into the past and points out the important medical advances which have taken place almost from the beginning of civilization. Dr. Alfred E. Cohn writes on the meaning of medical research and shows how it develops a spirit which inspires the man doing investigative work. Dr. Raymond Pearl's talk is informative. The contribution of Dr. H. S. Martland is particularly fascinating to those, of whom there are many, interested in crime and in detective stories. He points out that Edgar Allan Poe was the first writer of mystery stories and, while Sir Arthur Conan Doyle continued to develop new situations in detective lore, he and all his followers, the modern spinners of detective tales, have adhered very closely to Poe's original formula. Martland also recites some very interesting murder cases and tells how they were solved largely through the work of the physician and the scientist. The solution of criminal problems, incidentally, has been materially advanced by the institution of the medical examiner's system in New York and in Newark, replacing the antiquated, according to Martland, coroner's system. The article is factual and interesting.

Although compiled largely for the laity, any medical man interested in philosophic, scientific and historic phases of medicine will find this collected series of talks intensely interesting.

J. H. MUSSER, M. D.

Angina Pectoris: *Nerve Pathways, Physiology, Symptomatology, and Treatment*: By Heyman R. Miller, M. D. Baltimore, The Williams & Wilkins Co., 1939. Pp. 275. Price $3.25.

The book is divided into four sections. Section one treats of the concepts and clinical features of angina pectoris. The author explains the anginal syndrone as a disturbance of the entire autonomic system and the symptoms and signs correlated with the particular portions of sympathetic or parasympathetic nervous system. His clinical description takes in both angina pectoris and acute coronary occlusion. It is the reviewer's opinion that while these two conditions arise from the same pathologic state, only varying in extent, they should be kept separate in the minds of the physician as the treatment varies considerably.

In section two, in collaboration with L. Vosburg Lyons, M. D., he deals with the anatomic pathways for the transmission of cardio-aortic pain. This is described by a progressive series of drawings with descriptive text. These drawings are interesting and instructive.

Section three deals with the distribution, the simulation, and the treatment of anginal pain. The chapter on the non-surgical treatment of angina pectoris would be considered by most cardiologists as a fairly good description of the handling of a case of coronary occlusion. There is not enough said about the treatment and management of the cases of angina, seen by physicians, of various grades of severity. Some of these cases may have coronary occlusion, many never have it and may enjoy fair health for many years if properly advised.

On page one hundred seventy, under the treatment of paroxysmal auricular fibrillation, he recommends the giving of a grain and a half per pound of body weight of powdered digitalis. This is entirely too much and is possibly a mistake. In this chapter he also takes up the treatment of congestive heart failure, associated cardiovascular syphilis and cardiac cachexia. At the end of this chapter he gives a list of about seventy-five different drugs or combinations; in addition to this are listed about forty-five different derivatives of barbituric acid and their combinations.

In the chapter on the surgical treatment of angina pectoris, including thyroidectomy, he discusses the work done up to this time, with four pages of bibliography.

Section four discusses the physiology and psychology of pain. These chapters are rather good and worth reading.

There are many thought provoking statements in this book. On the other hand there are many that may be misleading, especially from a clinical standpoint. It makes interesting reading for one thoroughly familiar with the current opinions on this subject.

J. M. BAMBER, M. D.

Clinical Studies in Psychopathology: By Henry V. Dicks, M. A., M. D. (Cantab.), M. R. C. P. (Lond.). Baltimore, William Wood & Co., 1939. Pp. 248. Price $4.75.

The author, in the preface to his book, asks that it be accepted as an individual contribution to the current discussion—"if not confusion"—of a group of most important and interesting human problems.

Anxiety is characterized as a danger signal to the ego, as the most widespread of all of the symptoms of psychologic medicine and as the most

powerful determinant of pathologic adaptation and as its commonest expression.

Phobias, obsessional states, hysteria, the play of opposites, abnormalities of the sexual functions and drug addictions are appropriately explained from the viewpoint of an orthodox Freudian eclectic psychoanalyst. In discussing sexual abnormalities, it is written that "the amount of guilt present, the capacity for love and social relationship and the degree of impoverishment of personality suffered, will be the indices as to what extent such aberrations in sexual life are to be considered as 'neurotic,' as reactive character traits or as integrated and 'normal' functions of the particular individual." Drug addiction is regarded as an expedient resorted to by neurotic personalities of various types, when their other defences or compensations have broken down.

Throughout the text appear some eighty illustrative case studies, amazingly interpreted in accordance with formal Freudian concepts, principles and technics. Undoubtedly, sexually inclined neurotics would revel in these bizarre expositions and elucidations. The reviewer believes that Freudian interpretations are too often strongly influenced by the interpreter's inclination to reach conclusions in accord with his preconceived ideas and theories. For example, there appears on page 52 this statement,—the case having been related in detail: "Whereas in case No. 9 we were, I think, dealing with an hysterical displacement upwards from vagina to throat, in this case the 'power' element of the anal-urethral-phallic complex was much more evident."

The book is not an elementary text for the lay public, as the author states. It reports much valuable and fundamental practical work and research performed by a thoroughly trained English analyst and it will undoubtedly occupy a prominent place in psychoanalytic literature.

C. P. MAY, M. D.

Methods of Refraction: By J. W. Thornington, A. M., M. D. Philadelphia, P. Blakiston's Son & Co., 1939. Pp. 412. Price $3.50.

The third edition of this well-known volume contains approximately 400 pages. The subject is presented in a simple, practical manner, being written essentially for beginners. The geometric fundamentals of prisms and lenses are omitted. Lens transposition, of which medical refractionists usually know too little, is discussed at some length, and the technic of refraction is presented in rather a lucid style. The visual requirements of the army, navy, and automobile drivers is of practical value.

Some modern ideas in refraction, such as benzedrine, homatropine cycloplegia, duocrome tests, modern phoropters, and newer instruments for orthoptic training, could have been added to advantage, as well as more modern illustrations.

Notwithstanding its shortcomings, this volume can help beginners learn the ABC's of practical refraction more painlessly than any other.

CHAS. A. BAHN, M. D.

What It Means To Be A Doctor: By Dwight Anderson. New York City, Medical Society of the State of New York, 1939. Pp. 87. Cloth $1.00; paper $.25.

This small volume contains a fund of information which should be of interest and of value to the public as a whole, the patient as an individual, and the medical profession, individually and collectively. It is timely in its appearance as many of the problems which are confronting the public and the profession are clearly stated.

The author, a layman, feels that the public should know more about the doctor: "Especially do we need to understand him better in a day when forces are at work to change his status, from that of a free individualist to one of a civil servant, subject to governmental control.

"The public is asked to judge the doctor on meager information, and to decide whether he is right or wrong in resisting the tendency towards State Medicine."

The author undertook to find out more about the doctor, by sending questionnaires to a group of five hundred doctors. The questions which were sent out to doctors were intended to find out the quality of mind, the character of the individual, what decided the individual to study medicine, and if he had a son, would he wish him to select medicine as a career.

The summary of these investigations are of great interest. It is clearly brought out that the doctor must possess intellectual curiosity, optimism and courage, a flexibility of mind, and intellectual integrity.

In answer to the inquiry, one doctor wrote: "One cannot be a real physician unless he chooses his profession for the good he can do rather than the goods he can acquire."

In a novel form the author presents the story of medical education, the training of the individual after college graduation, and the development of medical organizations. Safeguarding public welfare by providing the best possible individual care is emphasized as a function of medical graduate programs.

In the final chapter "The Doctor of Tomorrow," the question is asked: "Why are doctors so disturbed by the possibility of State Medicine?" The answer: "It is because these new proposals involve in one way or another the substitution of a state official for the practicing physician of the patient's own choice."

This little volume is a splendid plea that the public should listen to the claims of the doctor when he states that his freedom is definitely at stake. It is a splendid plea for the public to ap-

preciate that the doctor knows best what would happen to him, if there should come government control. The interest of the doctor and the patient are the same.

This small volume is one which every doctor should certainly be familiar with. He might well recommend it to his friends, so that they too may be better prepared to understand what it means to be a doctor.

ISIDORE COHN, M. D.

Cutaneous Cancer and Precancer: By George M. MacKee, M. D., and Anthony C. Cipollaro, M. D. New York City, American Journal of Cancer, 1937. Pp. 222. Price $3.75.

This is a monograph designed for the practical purpose of reducing the mortality of accessible cancer and should serve as a reference text for the average physician or surgeon, as well as to the specialist and teacher, as a text for studying skin diseases, plastic surgery and radiologic therapy. The material is collected and arranged in a systematic manner. First the disease is pictured, then described; photomicrographs of the lesions, etiology of the disease, ways of prevention are shown; and lastly accepted treatment for the disease is outlined. The diseases are classified so that valuable time in an early diagnosis is conserved rather than lost, and a curable condition is treated before the "too-late" signal has to be hoisted.

This is a valuable book for quick, reliable reference written by men of vast experience.

M. T. VAN STUDDIFORD, M. D.

Life and Letters of Dr. William Beaumont: By Jesse S. Myer, A. B., M. D. St. Louis, C. V. Mosby Co., 1939. Pp. 327. Price $5.00.

The reprint of this work is timely, for just last May, in the "Bulletin of the History of Medicine," Luckhardt, in commenting on the Beaumont Collection of the University of Chicago, complained that the original printing of Myer's book was exhausted, and the volume was difficult to secure, even at a substantial price.

This book may be recommended unqualifiedly, for little need be added to the commendation that the original issue received at the hands of Sir William Osler, "it is a pleasure to introduce to the profession a worthy study of William Beaumont—family papers have been placed at the disposal of Dr. Myer to whom it has been a labor of love to present a picture of the first great American physiologist in its proper setting."

The typography is good, and the value of the book has been enhanced by the addition of an estimation of Beaumont's work by A. C. Ivy and by the inclusion in the appendix of the letters of Alexis St. Martin recently presented to the University of Michigan Library by Frederick A. Coller.

B. B. WEINSTEIN, M. D.

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